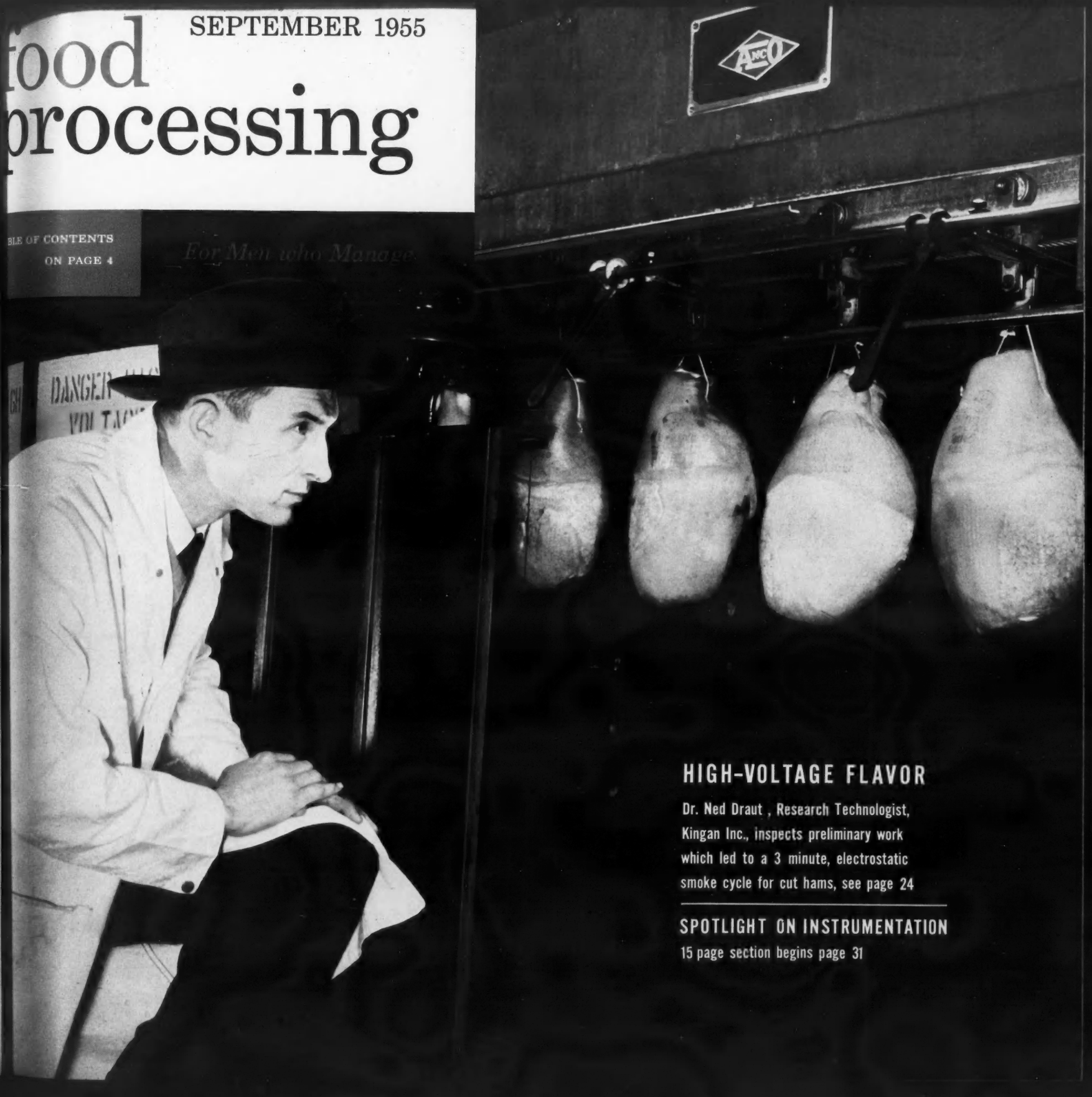
SEPTEMBER 1955

food processing

BLE OF CONTENTS
ON PAGE 4

For Men who Manage

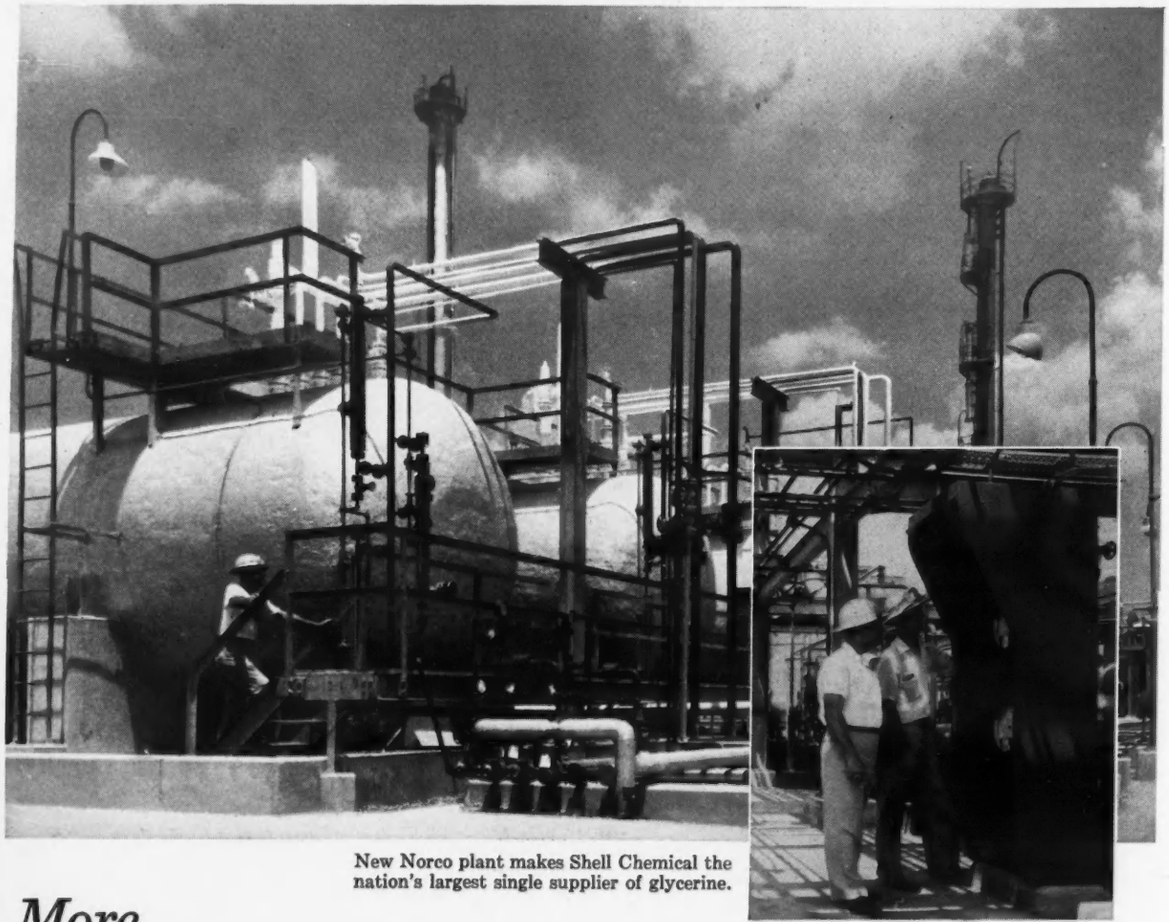


HIGH-VOLTAGE FLAVOR

Dr. Ned Draut , Research Technologist, Kingan Inc., inspects preliminary work which led to a 3 minute, electrostatic smoke cycle for cut hams, see page 24

SPOTLIGHT ON INSTRUMENTATION

15 page section begins page 31



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When inquiring check FP 3334 opposite last page

"THAT'S INTERESTING"

In lighter vein

Here's a fish story that might be said to have a light touch. In Alaska, the Salish Indians quickly meet the need for candles by utilizing a fish that supplies the equivalent of wax, while a piece of rolled up cypress bark serves as a wick. As you might guess, this unusual finny specimen is called the candle fish. (Dyelines and Bylines, American Cyanamid Co., Organic Chemicals Div.)

Salt in your diet

Those working strenuously in high temperatures can lose as much as one quart of water and one gram of salt per hour. Both must be replaced to avoid fatigue and exhaustion. Administration of extra salt under extreme conditions has been carried out in industry since 1920. A recently published booklet stresses the special needs for salt in the summertime diet of all persons. It cautions against self-imposed sodium-restricted diets by normally healthy persons. It points out that every cell in the body—heart, lungs, brain, kidneys, stomach, and intestines—require salt.

Booklet, "Salt in Your Diet," is issued by Salt Institute, Dept. FP, 726 La Salle-Wacker Bldg., Chicago 1, Ill. When inquiring specify FP 3334A on form opposite last page.

Masks effective against powerful insecticide

Gas masks and respirators using three new filter materials now are effective against demeton, a powerful insecticide developed from German World War II nerve gases, and formerly too dangerous for widespread farm use. Filters are specially made fine-fiber asbestos, wood pulp, and impregnated glass wool (Industrial Research Newsletter).

Five of a kind

Numerologists might attach significance to the way in which the figure 5 occurs in the precise timing of the recent Operation Cue tests at Yucca Flat, Nev. Detonation of the bomb occurred at 5 minutes after 5 am on May 5 of '55. Food technologists, there to study results of food exposure to atomic explosion, witnessed the test shot eight miles from ground zero. Report of findings on these investigations of food exposure appears on page 26.

(*Continued on page 18*)

food processing

(FOOD PROCESSING PREVIEW)

For Men who Manage

Published in Chicago

FOOD CAPITAL OF THE WORLD

Vol. 16 **SEPTEMBER, 1955** No. 9

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food processing • Volume 16, No. 9 • September 1955

FEATURE ARTICLES IN THIS ISSUE

NEW SOLUTIONS OF PROCESSING PROBLEMS

"Hurls" smoke particles into meat 25
Remove shank, aitch bone, wrap half-hams; make 'em more attractive 50

INSTRUMENTATION AND PROCESS CONTROL — spotlighted this month

Contents page listing articles on new developments, innovations 30
Buyers Guide for indicators, recorders and controllers 40

QUALITY CONTROL AND THE LABORATORY

"Corrosivity tester" estimates shelf-life of canned soft drinks 46

FOOD INGREDIENTS

Antioxidant spray extends shelf life of cereals 54
Adapt chemical antioxidant for use as feed additive 56

IDEAS

Food and Operation Cue — a picture trip to Yucca Flat 27
Quick appraisal guide of food irradiation 58
AEC irradiation facility for sterilizing No. 2 cans available for industry use 61

MATERIALS HANDLING

Cold room conveyor eliminates pushing and stacking racks 66
New series of walk-in trucks for multi-stop service 68
"Soup's off" — in just six minutes 71

PACKAGING

Machine vacuumizes packages, then heat seals them 76
Package News-of-the-Month 80

PROCESSING EQUIPMENT

Homogenizers assure uniformity in Cott's flavor concentrates 88
No vortex, faster circulation with high speed portable mixer 93

SANITATION AND MAINTENANCE

Centralized "steamblast" cuts clean-up time 94
Cuts hazard, time in pulling exchanger tube bundles 96

CROP PRODUCTION AND HANDLING

Quickest way to move 80,000 bu of apples 100

Over the editor's shoulder

Gold Is Where You Find It

"Dummy Day" browsings . . . going through the proposed contents page (appearing in the center of this page), I was again reminded of the wide scope of activities involved in the dissemination of up-to-date technical information. For example, material for articles on food processing operations, equipment installations, and new cost-cutting applications was gathered in such places as Philadelphia (page 30), Cincinnati (page 66), New Haven (page 88), and Los Angeles (page 94).

In addition to plant calls, another good source of information for articles is industry expositions (see page 16) and technical meetings such as the annual Institute of Food Technologists meeting recently held in Columbus, Ohio. While in Columbus, four of us—Milleville, Robe, Nordlinger, and myself—renewed old friendships and made quite a few excursions into the area in search of the kind of interesting stories that you, our readers, expect.

At least two of the articles either started or completed at the IFT meeting are found in this issue: Application of Antioxidant to dry cereals, page 54, and the article describing Kingan's three minute smoke cycle, page 24.

Karl Klomparens

ASSISTANT EDITOR

SPECIAL SERVICE FOR READERS

1. When you want more information, see Reader Service slip opposite page 109

2. If you are looking for information on specific products, use the handy Product Directory . . . lists everything in this issue with page reference, see page 105

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OTHER REGULAR FEATURES

Food Regulations 5
Bakers Exposition 16
Food Industry News 19
Association News 22
Conventions & Exhibits 23
New Industrial Literature 84
Briefs from Other Magazines 103
Advertisers Index 107

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Food Regulations

News and Interpretations
FDA • Congress • Identity Standards
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USDA Grade Standards • State Legislatures

Food industry, and chemical makers back different bills on additive procedures

Chemical additive legislation next year? Food leaders in Washington think so — and that the final result will be generally in line with industry recommendations. Identical bills supported by most food men were introduced late in the recent session by Rep. Priest (D., Tenn.), chairman of the House Interstate and Foreign Commerce Committee, which will hold hearings on the legislation, and Rep. O'Hara (R., Minn.). Numbers of the bills, respectively, are HR 7605 and 7606.

Also introduced by Priest was HR 7607, "by request" of the Manufacturing Chemists Association. Other additive bills introduced by Delaney (D., N. Y.) and Miller (R., Neb.) are given less chance for serious consideration.

Food-industry bill introduced by Priest and O'Hara differs from earlier legislation offered by the two men. It eliminates FDA power to consider need or usefulness, limiting agency consideration to safety factors.

Neither the MCA or food-industry measures would provide for review of industry-FDA differences by a committee of the National Academy of Sciences, as has been provided in the pesticide law passed last year. Fundamental difference between the MCA version and that backed by food groups remains the question of judicial procedure. The MCA bill provides that a chemical additive could be used in the face of an adverse decision simply on 30-day notice to the government. The food industry bill would prohibit use of an additive unless it is first approved by FDA, with the right for industry appeal to circuit courts in case of adverse decisions.

This procedure, many food executives think, would insure against use and promotion of an additive only to run up against government objections at a later date. The MCA bill would exempt a food manufacturer from FDA action if he had a guarantee from the chemical company that sold the additive.

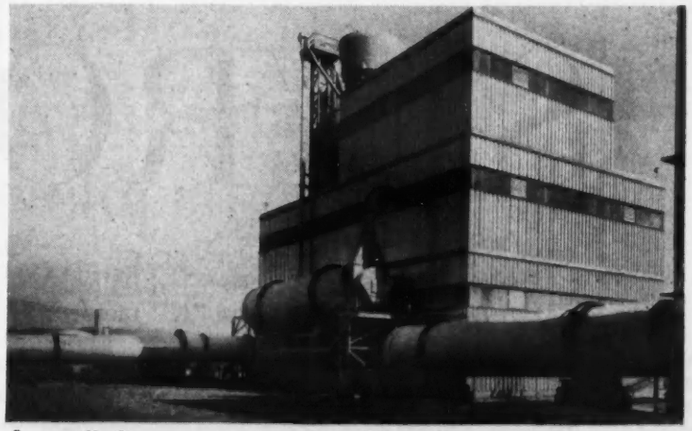
Surplus butter stock halved in year — new plan for private sale abroad

US Department of Agriculture reports that a big dent has been made in the butter bulge. Government supply is about one-half of a year ago. Retail butter

(Continued on next page)

when it comes to processing **Soybeans**

CENTRAL SOYA goes to Louisville equipment



Louisville Dryer operation at Central Soya Company's Chattanooga, Tennessee soybean processing plant

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(*Continued from preceding page*)

sales have increased, and people are drinking more fluid whole milk, leaving less for processing. USDA supplies of cheese and nonfat dry milk also have been reduced substantially.

Most government dairy stocks, though, have been given away — at a cost to taxpayers in the past year of a whopping $255 million.

A new plan for selling its surplus butter has been announced by the Department. Effective Aug. 15, USDA made its butter available for sale on a competitive bid basis to be exported by private companies for industrial use abroad.

Offers to buy the butter acquired in price support operations may be submitted on the basis of delivery f.a.s. vessel at port of export or of delivery at point of storage. Offers may be made on US Grade A or B butter. Within 60 days after delivery date, proof of export must be submitted. The butter may be processed or repackaged for export as approved by USDA's Commodity Credit Corporation.

Offers are to be submitted to the Livestock and Dairy Division, Commodity Stabilization Service, USDA, Washington 25, D. C., for acceptance within two days.

An offer to buy CCC-owned butter must be accompanied or followed by a written use-certificate signed by an authorized representative of the government of the country in which the butter is to be used. The government of the importing country must agree that the butter will be permitted entry into the country, and certify it will be used in that country and only in the industrial uses specified.

FDA abandoning traditional objections to use of harmless amounts of toxic food ingredients?

Is Food & Drug Administration backing away from its traditional position against use of toxic chemicals in foods in amounts found to be harmless?

There are indications that this is the case. Part of the evidence involves the impression obtained in private conversations with FDA officials in Washington — but there also has been public notice that the Agency attitude is shifting. In a little-noticed speech before the recent Institute of Food Technologists meeting, Commissioner George P. Larrick included this interesting paragraph:

"The application of the principles of the pesticide amendment to food additives generally would, of course, mean a quite fundamental change in the philosophy of the pure food law which has prevailed since enactment of the original statute in 1906," he said, and added: "It would mean abandonment of the so-called *per se* rule against poisonous and deleterious substances, regardless of the amount, and would adopt instead the concept of establishing tolerances for harmless amounts of toxic materials, where there

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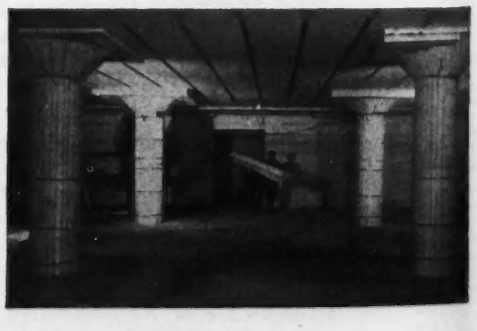

This large New York City frozen food distributor for Seabrook Farms first installed Styrofoam (Dow expanded polystyrene) in 1952. Their satisfaction is shown by their selecting Styrofoam for the insulation of their new 45′ x 70′ freezer. The superior resistance of Styrofoam to water vapor assures a permanently low "K" factor. Styrofoam resists rot and mold. Its ease of fabrication allowed the many columns in this room to be efficiently insulated. The insulating contractor was Eastern Cold Storage Insulation Co., Inc.

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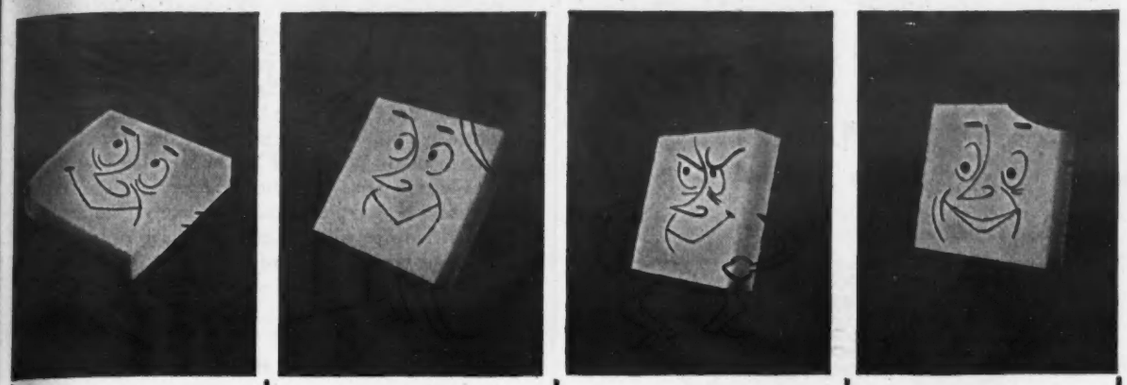

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would be an advantage to justify such additions."

What the FDA position finally will be won't be known until its parent Department of Health, Education & Welfare has taken a stand. It might be known by this time, except for the resignation of Mrs. Hobby as Secretary, and her replacement on Aug. 1 by Marion B. Folsom. Many Department policy decisions have been delayed until consideration by the new Secretary, including the Department's position on chemical additive legislation.

Reaction to the Folsom appointment is generally favorable in Washington. The new Secretary has a long record of business and government experience, with emphasis on social security matters. He comes to his new job from that of Under Secretary of the Treasury, a post to which he was appointed by President Eisenhower in 1953.

Mr. Folsom was born at McRae, Ga., in November, 1893, and was graduated from the University of Georgia in 1912, Harvard Business School in 1914. He left a position as Treasurer and Director of Eastman Kodak Co. in Rochester to join the Eisenhower Administration.

FTC charges trade conspiracy against National Food Brokers Assn

Recent actions by FTC include charges against the National Food Brokers Association, one of the broadest cases initiated by the Commission in recent years. The brokers' group, says the Commission, has operated an illegal trade conspiracy to the prejudice and injury of the public. The Association is accused of engaging since 1943 in use of restricting, restraining, and unfair policies that tended to stop competition.

Full hearings on the charges were scheduled to start on Aug. 15. The brokers' organization and its members could be placed under a Commission cease and desist order carrying maximum penalty of $5000 for a violation, if guilty of the alleged practices.

Howrey resigns from FTC — leaving reforms 'largely completed'

Resignation of Howrey as FTC Chairman will bring to the Commission former GOP Gov. Siguard Anderson of Webster, South Dakota, who has been practicing law since his gubernatorial term ended last December. Anderson's appointments is subject to confirmation when Senate reconvenes. He will fill remaining four years of Howrey's term expiring Sept. 26, 1959.

Replacing Howrey as Chairman is present Commission member John W. Gwynne of Waterloo, Iowa, appointed to FTC by President Eisenhower in 1953. Gwynne was Congressman from 1935 to 1948 serving on the House Judiciary Committee.

(*Continued on next page*)

OLD FAVORITES

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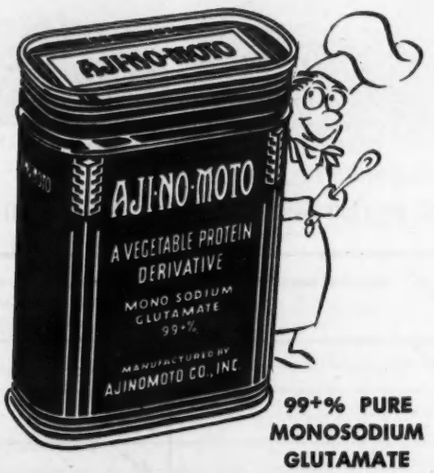

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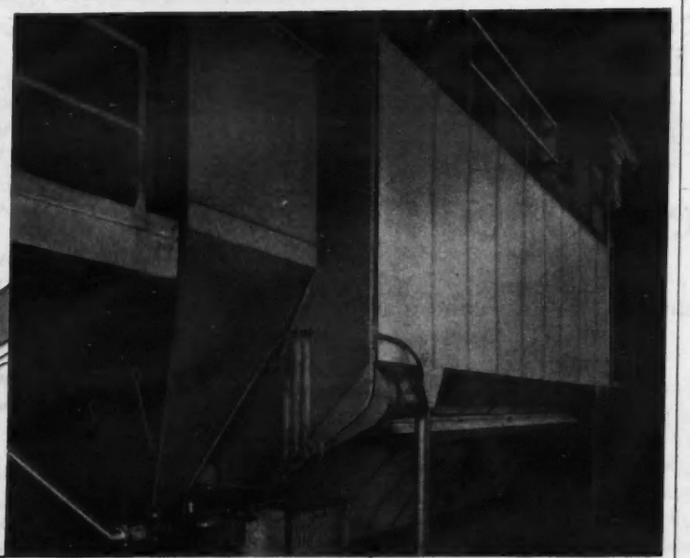

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Inside view showing air suspension outlet through center of drying chamber floor.

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(*Continued from preceding page*)

In resigning to return to private law practice Howrey said Agency reforms "largely have been accomplished" and Commission "has been reorganized from top to bottom" with docket up to date for the first time in almost 40 years. FTC, he said, has become "a hard-hitting law enforcement Agency". The President said he accepted "most reluctantly" the resignation of Howrey who has gained reputation for breaking many previous law enforcement records.

FDA finds mineral oil being used for pan greasing — action is contemplated

FDA officials report they have found widespread use of pan greases containing mineral oil, particularly by cake bakers, and are disturbed by the fact. It has not been publicized, but the agency is contemplating regulatory action to prevent the practice.

FDA long has taken the stand that mineral oil is "not a suitable ingredient in food", and considers such use as "adulteration". Agency objections to use of the oil in food goes back to the early 40's, culminating in a 1947 case that went to the court of appeals.

The case, won by the government, concerned condemnation of mineral oil sold as a popcorn dressing. The court held that the product was adulterated, and that this condition was not corrected by truthful labeling. Expert testimony brought out that mineral oil in the body interferes with absorption of vitamins A, D, K, as well as of calcium and phosphates; and that such interference was more serious when mineral oil was mixed with food than when it was not.

USDA Grade Standards

Checklist of new or proposed grade standards issued by USDA follows. Except where noted, complete texts can be secured from USDA, Fruit and Vegetable Branch, Processed Division, Washington 25, D. C.

Raisins: Revision took effect Aug. 26. Main changes reduce allowances in pieces of stems for all three types — Thompson Seedless, Muscats, and Sultanas. Allowances for moldy raisins are adjusted slightly, and permitted defects allow for normal variations in handling and processing for respective quality grades.

Dates: Revised standards effective Aug. 26. Nomenclature for styles and grades slightly changed, and a scoring system is established for color, size, defects, and character. Grade A or Fancy is limited to whole or pitted natural dates or those softened by hydration; Grade B

(*Continued on page 15*)

For more information on product at right, specify FP 3340 . . . see information request blank opposite last page.

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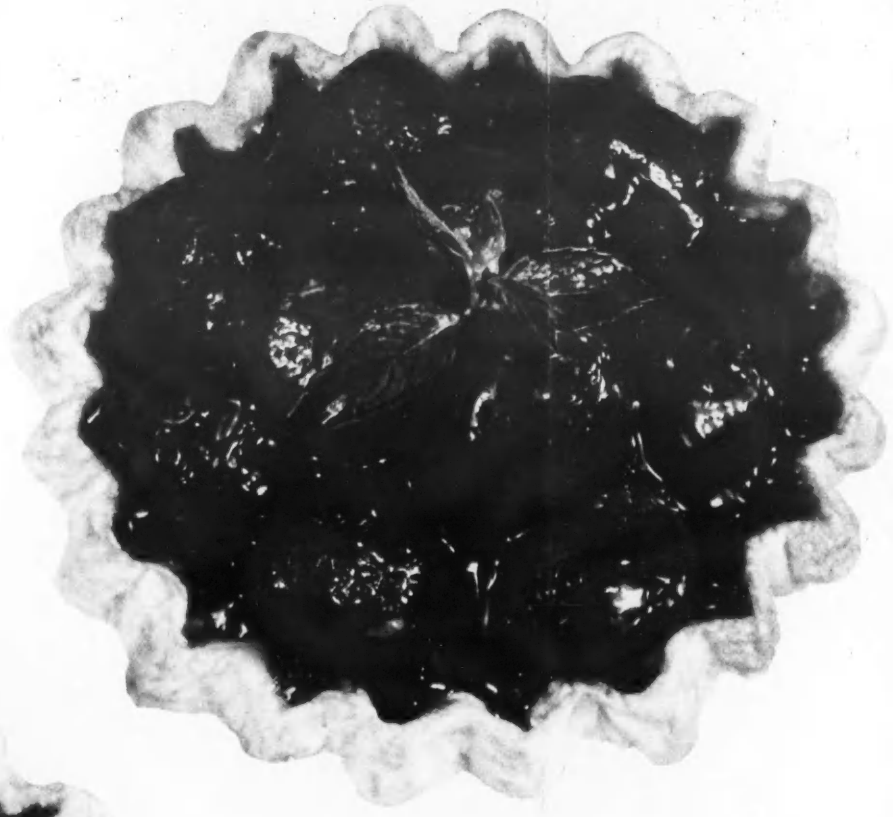
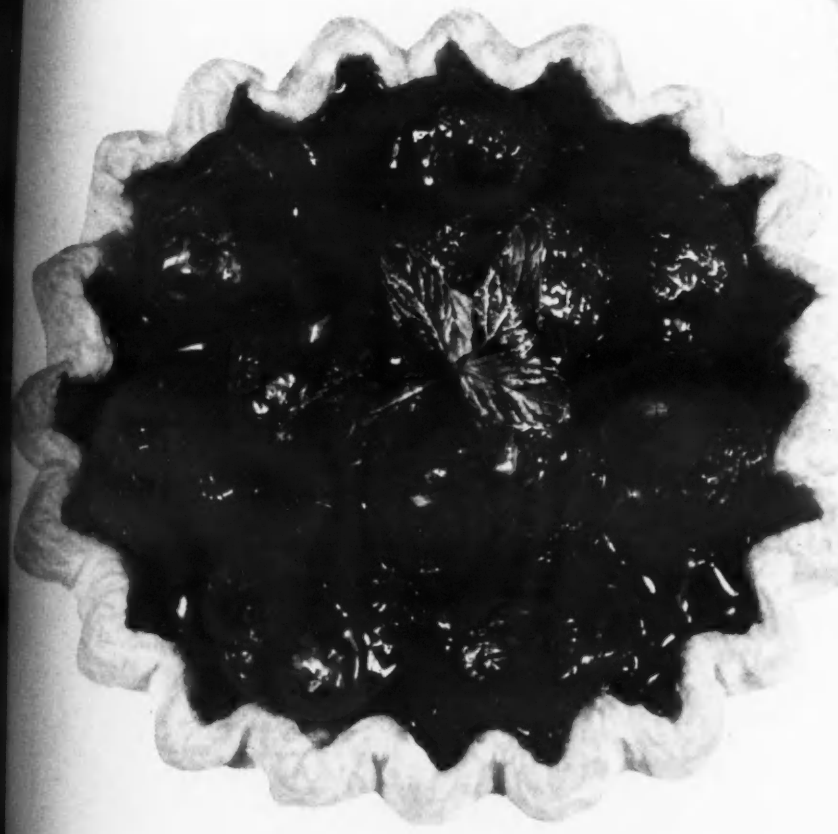


248 calories if sweetened with sugar



148 calories if sweetened with non-caloric Sucaryl

Abbott Laboratories' new non-fattening sweetener —Sucaryl—opens up a whole new world of eating and drinking enjoyment to the millions who must watch their weight.

This is improved Sucaryl: A harmless substance without food value . . . without calories . . . but with the property of tasting just like sugar, and giving a sugar-like sweetness to drinks and foods. Sucaryl completely satisfies your craving for sweets when you're on a restricted, low-calorie diet. In normal daily use, improved Sucaryl sweetens without a trace of bitterness or aftertaste.

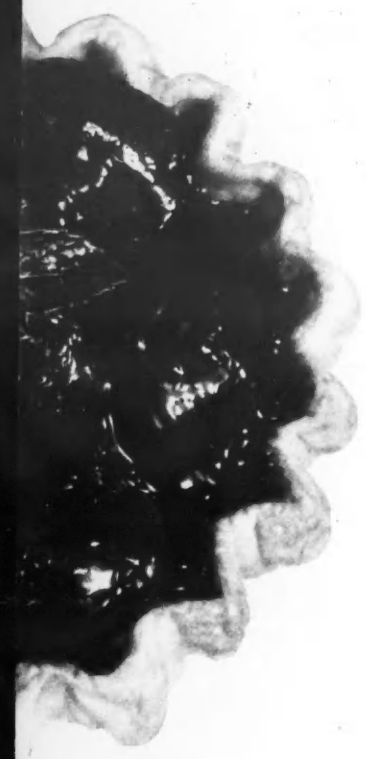
You can use Sucaryl everywhere: Use it in your morning coffee, on cereal or grapefruit. Use it in any and all cooking recipes that call for a sweetener. Foods prepared with Sucaryl can be baked, boiled or frozen without losing true, sugar-like sweetness. The only thing to remember is that the proper proportion to use varies with each recipe. So be sure to send for your free copy of the Sucaryl recipe book offered below.

You don't need Sucaryl if you don't have to worry about calories or carbohydrates. Sugar is one of the most highly concentrated sources of quickly available energy, and should be retained in normal diets. Sucaryl is intended for use in controlled diets. If you are in doubt about dieting, ask your doctor for proper guidance.

Look for the name Sucaryl on the label of prepared foods or beverages. It means that you can enjoy that low-calorie food or drink without adjusting your taste one whit.

If you are diagnosed as overweight or a diabetic, Sucaryl opens the way

If you are not counting calories, you don't need this new, non-fattening sweetener. If you are, you do.



eetened with sugar

aloric Sucaryl

You can save a lot of calories by sweetening with Sucaryl

...and you can't taste the difference

aryl can be baked, boiled or frozen etness. The only thing to remem- use varies with each recipe. So be Sucaryl recipe book offered below.

't have to worry about calories or ost highly concentrated sources of uld be retained in normal diets. led diets. If you are in doubt about guidance.

el of prepared foods or beverages. It alorie food or drink without adjust-

or a diabetic, Sucaryl opens the way to greater eating pleasure. You can now enjoy a more normal variety of foods and beverages, and still follow the rigid requirements of your diet.

STRAWBERRY TARTS (*Makes 8 tarts*)

1 cup sifted, enriched flour	Cold water	2 tablespoons SUCARYL
½ teaspoon salt	1 quart strawberries	Solution or 48 tablets
⅓ cup shortening	(hulled)	3 tablespoons water

Mix and sift flour and salt; cut in shortening. Sprinkle with 1 tablespoon cold water; mix in lightly with fork. Add water until pastry gathers around fork in soft ball. Roll out ⅛-inch thick on lightly floured board, cut 8 rounds. Press pastry circles on inverted, fluted pastry pans; trim edges. Prick pastry with fork; bake upside down in hot oven (450°F.) 12 minutes. Cool slightly, remove from pans. Cool thoroughly. Crush slightly, 2 cups strawberries; add SUCARYL and 3 tablespoons water; simmer 5 minutes; cool; drain off liquid and save. Place cooked strawberries in tart shells. Fill with remaining whole berries. Spoon liquid over berries.

Get your free copy of Abbott's "Calorie-Saving Recipes" at your drug store. It's a brand new edition with dozens of kitchen-tested ideas. Or simply write: Sucaryl, Abbott Laboratories, North Chicago, Illinois. In Canada: Abbott Laboratories, Ltd., 1350 Cote de Liesse Road, Montreal, Quebec.

IMPROVED

Sucaryl®

THE NEW, NON-FATTENING SWEETENER THAT TASTES JUST LIKE SUGAR

Available at your drug store in Tablet, Powder or Liquid form.
For low-salt diets, ask for Sucaryl Calcium.

(*Continued from page 8*)

or Choice is for whole dry
or Standard for date pieces
quality. Dates in the latter
or pitted dates — and wh
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similiar to the previous sta
since Oct. 1949.

Dried Currants: Revision o
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defects.

Frozen Lima Beans: Amend
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clarify the definition of h
material.

Dried Apples: Revision in g
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factors of color, size defects

Summer & Fall Pears: Rev
effective Aug. 20. Main ch
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in the areas of scab spots p
damage and serious damage,
scoring in US standards for

Apple Butter: Comments on
standards have been receive
pending.

Canned Asparagus: Revisio
until at least next year as re

Tangerine Juice: Deadline w
tions to standards for grades
by processors. Standards w
juice preserved by any appr

Shell Eggs: Proposed change
"suspended" indefinitely. Of
they are gathering more f
"more unanimity of opinion
dustry people. Main argum
weight classes would or w
egg producers.

Poultry Pies: Changes in reg
off, officials indicate, due t
on proposed amendments. M
should develop standards of
sors manufacturing poultry p
meet regulations required b
use of government inspectio
involve minimum meat conte
terms.

Lambs: Revision of grading
by representatives of meat
ducers, and wool growers.
are not ready "to recommen
lamb grading", but do want
to the government may be f
of federal-inspected lambs gr
increased from 3% in 1942 to

(Continued from page 8)

r Choice is for whole dry dates for processing; Grade C r Standard for date pieces or macerated dates of sound uality. Dates in the latter grade also may include whole r pitted dates — and whole dry dates for processing, hen of this quality, are considered Grade C (Dry) or tandard (Dry). Factors of color and uniformity remain miliar to the previous standards that had been in effect nce Oct. 1949.

ried Currants: Revision of grade standards were effec- ve Aug. 26. Main change reduces allowances for pieces f stems. Allowances for mold are separated from other efects.

rozen Lima Beans: Amended standards that took effect ly 15 provide for use of USDA color standards, and arify the definition of harmless extraneous vegetable aterial.

ried Apples: Revision in grade standards proposed more an a year ago has since been given further official con- deration, leading to second proposal on which views d comments were due Aug. 29. Slight adjustments ere made from the first proposal in uniformity of size d defect allowances. Separate styles of rings and slices the first proposal were combined in the second pro- sal into one style of slices or rings, with adjustments applicable requirements. Eliminated from the second oposal was evaluation of the scoring system for quality ctors of color, size defects, and textures.

mmer & Fall Pears: Revised grade standards became fective Aug. 20. Main changes include re-wording of e Application of Tolerances statement for more adapta- lity to packing for consumers; a provision for calculat- g percentages on the basis of count for packages con- ining not more than 5 pounds of pears; and an increase the areas of scab spots permitted under definitions of mage and serious damage, in order to compare with the oring in US standards for apples.

ple Butter: Comments on proposed revision of grade ndards have been received, but official action is still nding.

nned Asparagus: Revision of standards won't come til at least next year as reported here previously.

ngerine Juice: Deadline was Aug. 29 for filing excep- ns to standards for grades for manufacturing requested processors. Standards would apply to concentrated ce preserved by any approved commercial method.

ell Eggs: Proposed changes in weight classes have been spended" indefinitely. Officials report, meantime, that y are gathering more facts, and trying to achieve ore unanimity of opinion" among producers and in- stry people. Main argument is whether changes in ight classes would or would not reduce income of producers.

ultry Pies: Changes in regulations are still a long way officials indicate, due to differences in the industry proposed amendments. Main question is whether FDA ould develop standards of identity covering all proces- s manufacturing poultry pies. Some 85% of them now et regulations required by USDA as prerequisite to of government inspection marks. Current proposals olve minimum meat content in pies, and definition of ms.

mbs: Revision of grading standards is being considered representatives of meat packers, lamb feeders, pro- ers, and wool growers. Industry sources report they not ready "to recommend discontinuance of federal b grading", but do want changes. Recommendations the government may be forthcoming soon. Percentage federal-inspected lambs graded by the government has reased from 3% in 1942 to about 35%.

(Continued on page 104)

Makers of salad dressing need '999'

So do makers and processors of beer . . . candy . . . canned foods . . . cereals . . . malted milk . . . margarine . . . mayonnaise . . . meats . . . olives . . . sauerkraut . . .

Morton '999' Salt
for better flavor and quality

Morton '999' Salt insures uniform flavor and quality in processed foods for two reasons:

1. Morton '999' is *guaranteed* always to contain more than 99.9% pure sodium chloride. The remaining 0.1% (or less) is a neutral inert sodium salt—and never bitter calcium or magnesium compounds.

2. Morton '999' Salt is produced by vacuum pan evaporation to assure you a salt that is clean, free-flowing... evenly soluble. '999' Salt is particularly low in objectionable trace metals.

For more information about Morton '999' Salt—and about Morton service and technical help—write this week to:

MORTON SALT COMPANY
Industrial Division, Department P7-9
120 South La Salle Street, Chicago 3, Illinois

When inquiring check FP 3341 opposite last page

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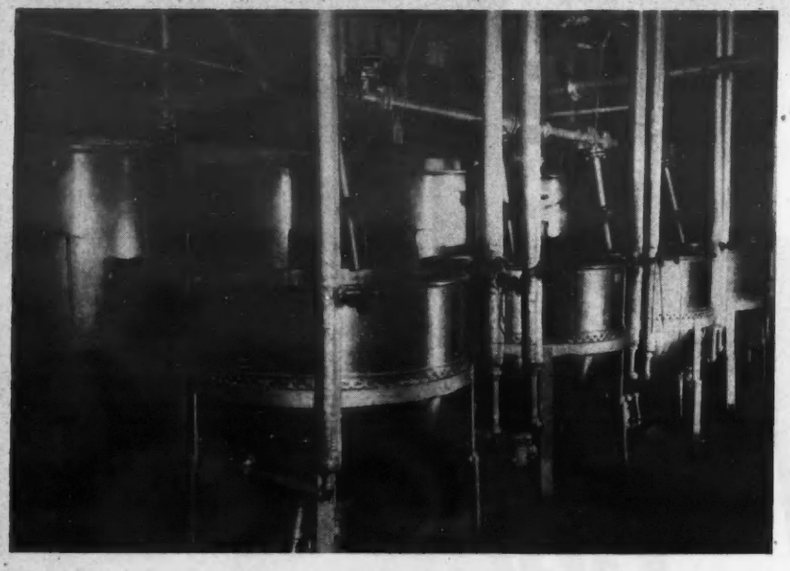


Oakite Descaling Prevents Permanent Injury To Kettles

Plant reports clogged water jackets of blending kettles restored to full operating efficiency by Oakite materials

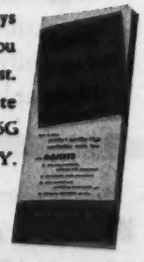
There were 17 of these chocolate blending kettles at this processing plant. And they weren't transferring heat properly. Investigation showed why. Their water jackets were choked with a baked-on algae growth plus ½" wall of lime scale. Oakite was consulted.

A two-pronged attack on this problem was suggested by the Oakite Technical Service Man, based on his wide experience with various tough cleaning jobs in food plants. First, a solution of Oakite Compositions No. 19 and No. 53 to remove the heavy outer black deposits. Then descaling by circulating a solution of lime scale dissolver, Oakite Compound No. 32.

Results: Water jackets cleaned down to the base metal—rated heat transfer regained. And 17 costly kettles saved from permanent injury.

Proving that—in industrial cleaning it always pays to consult Oakite.

Whatever your cleaning problem, you are invited to draw on the wealth of experience Oakite offers. Booklet 7709 tells many more ways Oakite can help you clean better at lower cost. Send for it—Oakite Products, Inc., 26G Rector St., N.Y.6, N.Y.



SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. and Canada

When inquiring check FP 3342 opposite last page

EXHIBITORS AT
baking industry show

Convention Hall
Atlantic City, N. J. . . . Oct. 1-6, 1955

Booth	Exhibitor	Product*
	A	
1228	Advance Oven	A
1016	Allen Cartons, Inc.	D
408	J. W. Allen & Co.	B
G-15	Allied Trades of the Baking Industry	H
446	Alto Corp.	C
773	Aluminum Cooking Utensil Co., Inc.	A
1038	Aluminum Foil Packaging Co.	D
212	Alvey-Ferguson Co.	F
1438	American Almond Products Co., Inc.	B
568	American Bakers Assn.	H
103	American Bakers Coop.	G
672	American Breddo Corp.	H
1028	American Dry Milk Inst.	A
572	American Inst. of Baking	H
130	American Machine & Foundry Co.	A
269	American Maize-Products Co.	B
277	American Society of Bakery Engineers	H
1210	American Spice Trade Assn.	B
D-6	American Viscose Corp.	D
1311	Amsco Packaging Machinery Inc.	C
562	Anetsberger Bros., Inc.	A
202	Anheuser-Busch, Inc.	B
H-22	Armour & Co.	B
B-5	Arnold Bakers, Inc.	D
764	Associated Retail Bakers of America	H
	B	
H-12	Bagcraft Corp. of America	D
1323	Bakers Franchise Corp.	H
330	Baker Perkins Inc.	H
164	Baker Process Co.	A
570	Bakers of America Program	H
271	Bakers Review	H
404	Bakers Weekly	H
1152	Bakery Crafts Division	G
422	Bakery Equip. Manufacturers Assn.	H
564	Baking Industry	H
420	Baking Industry Sanitation Standards Committee	H
1050	Barrett-Cravens Co.	E
506	Basic Foods Sls. Corp.	A, B
857	Bassick Co.	E
520	Battle Creek Packaging Machs. Inc.	C
1416	Bauer Machine Co. Inc.	A
1007	E. A. Bergholtz Co.	H
1127	Bestpak Inc.	D
1011	Bes-Tex Foods Corp.	B
851	Bettendorf Cookie-Matic Corp.	A
826	Better Products Machinery Co., Inc.	A
107	Bevles Co.	E
716	The Birn Co.	H
H-16	G. S. Blodgett Co. Inc.	A
1310	Borden Food Products Co.	B
1154	Boston Metal Products	E
1130	Boyertown Auto Body Wks.	E
622	Brantford-Lockwood, Ltd.	H
1247	Otto Braun Bakery Equip.	H
835	Braun Brush Co.	F
1242	H. C. Brill Co. Inc.	B
1414	Brokay Products	B
1031	Brolite Co. Inc.	B
1262	Brooks & Perkins, Inc.	E
1361	Bucks Co. Enterprises	A, E
H-8	B. H. Bunn Co.	C
833	Burrell Belting Co.	E
929	Buy-Vue Displays Co.	H
	C	
106	Caravan Products Co.	B
1320	Vincent Casale & Co.	G
308	Century Machine Co.	H
462	Champion Machinery Co.	A, E
566	Chapman & Smith Co.	B
1030	Cherry-Burrell Corp.	A
A-10	Chevrolet Motor Div.	E
1440	Chicago Almond Products Co.	B
262	Chicago Metallic Mfg. Co.	A
1355	Christy Machine Co.	H
928	Chrysler Corp., Dodge Div.	E
1215	C. I. T. Corp.	H
678	Clark Equip. Co.	E
1027	Clinton Foods, Inc.	B
836	Coast Novelty Mfg.	A, G
784	Cochran Foil Co. Products Div.	C, D
410	Colborne Mfg. Co.	A
1349	Coldin Cabinet Co.	G
1340	Cole Specialties	G
709	Columbus Show Case Co.	G
174	Corn Products Sls. Co.	B
1330	Creamery Pkg. Mfg. Co.	A
165	Crescent Metal Prods.	E
1055	Crissy Co.	E
	D	
183	Daher Co.	D
430	J. H. Day Co.	A
1432	DeKalb Commercial Body Corp.	E
1342	Delta Machine & Mfg.	H
514	Despatch Oven Co.	A
A-4	Divco Corp.	E
1225	Diversey Corp.	F
125	Doughnut Corp. of America	A, B
1024	Dow Corning Corp.	A
1112	Doyle Vacuum Cleaner Co.	F
1164	Drehmann Paving & Flooring Co.	F
208	Dukay Machinery Corp.	A
A-7	E. I. duPont de Nemours	D
1047	Durkee Famous Foods	B
178	Dutchess Bakers' Machinery Co.	A
	E	
122	Ekco Products Co.	D
185	Enrichment Products Co.	B, G
1212	Ensign Ribbon Burners	A
667	C. E. Erickson Co.	G
614	Erko Steel Products	H
272	Excelsior Engineering	A
1026	Extrin Foods	B
	F	
1136	Fabricon Products	H
1413	Fairbanks Co.	E, F
1138	Fanner Metal Products	H
1040	Faulds Oven & Equipment Co.	A
710	Federal Refrigerator Mfg. Co.	A, F, G
1443	Fish Mfg. Co.	C
1048	W. J. Fitzpatrick Co.	A
101	Florida State Univ.	H
859	Foil Kraft, Inc.	D
176	Folding Paper Box Assn. of America	D
1353	Food Engineering	H
842	Ford Motor Co.	E
1037	Foster Refrigerator Corp.	A
950	Freezer Box Div. Annapolis Yacht Yard, Inc.	A
925	Frigid Food Products	B
832	Frigid Igloo Mfg. Corp.	G
1318	Fruehauf Trailer Co.	E
737	Fuller Co.	E
	G	
640	General American Transportation Corp.	E
671	Franklin Baker Div. General Food Corp.	B
919	Walter Baker Div. General Food Corp.	B
578	General Mills	B
E-20	GMC Truck & Coach Div. General Mtrs.	E
760	Girdler Co., Votator Div.	A
1119	Globe Products Co.	H
166	Jeff Goldstein, Inc.	H
820	Gopher Grinders, Inc.	H
1137	Gordon Cartons, Inc.	D
H-24	Groen Mfg. Co.	A
656	J. W. Greer Co.	A
768	S. Gumpert Co.	B
840	Ervan Guttman Co.	D
	H	
510	Hachmeister Inc.	B, F
1018	Hamilton Copper & Brass Wks.	A
476	Hayssen Mfg. Co.	C
837	Henderson's School of Cake Decorating	G
1039	Henningsen Inc.	B
1012	Henry & Henry Inc.	B
964	Herman Body Co.	E
1125	Hertz Systems, Inc.	E
1153	Hinkle Machinery Co.	H
517	Hobart Mfg. Co.	C
778	Homogenette Inc.	H
1435	Howard Refrigerator	A
823	Hubbard Oven Co.	A
E-18	Hudson Sharp Mach. Co.	C
1236	Hugé Co., Inc.	F
B-7	Humko Co.	B
1019	Philip V. Hughes & Sons	F
839	R. F. Hunter Co.	F
	I	
275	I. D. Company	D
509	Industrial Washing Machine Corp.	F
G-11	International Foodcraft Corp.	A
700	International Harvester Co.	E
E-11	International Milling Co.	B, E
	J	
1142	Jentzen-Miller Co.	G
819	Jered Industries	D
1335	J. A. Joffe & Co.	G
1036	H. A. Johnson Co.	A, B
780	Jomac Inc.	F
	K	
574	Kalamazoo Vegetable Parchment Co.	D

WHO MAY REGISTER: The registration fee to attend the Exposition and Convention sessions is $15 for bakers and processors, others $30. Pre-registration forms are available from American Bakers Association, Dept. FP, 20 N. Wacker Drive, Chicago 6, Ill. This list of exhibitors is as accurate as it is possible to prepare at press time. For last minute changes, the reader should contact the Association.

Booth	Exhibitor	Product*
960	I. Kalfus Co.	A
1043	King Midas Flour Mills	B
1252	Kol-Flo Kooler Co.	A
111	Frederick A. Krause Associates, Inc.	G
	L	
1237	Henry Laber & Assoc.	A
825	Ladish Co., Tri-Clover Division	F
1139	Land O'Lakes Creameries	B
1431	Lane Mfg. Co.	A
1316	Lanham Machinery Co.	A
602	Latendorf Conveying Corp.	E
1317	Lee Metal Products Co.	A
H-14	Lever Bros. Co.	B
172	J. Levinsohn Co.	H
622	Lockwood Mfg. Co.	A
838	C. W. Logeman Co.	A
121	W. E. Long Co.	H
362	Joe Lowe Corp.	A, B
	M	
1057	Magnus Chemical Co.	F
454	Maine Machine Wks.	A, C
1411	Maine Mfg. Co.	G
216	Mallet & Co.	A, B
611	Marathon Corp.	D
951	Markem Machinery Co.	C
817	Martin Oven Co.	A
1238	Master Mechanics Co.	F
1129	Merck & Co.	B
853	Merck-Sharp & Dohme	B
1240	Mercury Heat Sealing Equipment Co.	C, E
177	Metalwash Machinery Corp.	F
1326	Meyercord Co.	G
715	Middleby-Marshall Oven Company	A
1041	Midland Laboratories	H
855	Mies Filter Co.	A
1161	Milprint Inc.	D
924	Molded Fiberglass Tray Co.	D, E
1256	Moline, Inc.	A
1429	Walter Molzolin & Co.	G
618	Montpelier Mfg. Co.	H
1029	Morton Salt Co.	B
	N	
769	National Bakers Services	H
250	National Bread Wrapping Machine Div. Package Mach. Co.	C
1025	National Bundle Tyer	H
H-18	National Cash Register	H
1437	National Equip. Corp.	H
122	National Glaco Chemical Corp.	H
207	National Starch Prods.	B
119	National Truck Leasing System	E
1230	National Vulcanized Fibre Co.	E
549	National Yeast Corp.	B
1426	Charles L. Niles Co.	H
1327	Nulomoline Div., American Molasses Co.	B
	O	
1219	E. T. Oakes Corp.	A
171	Oakite Products	F
662	Oliver Mach. Co.	C, D
1042	J. B. E. Olson Corp.	E
109	Henry H. Ottens Mfg.	B
	P	
250	Package Machinery Co.	C
847	Pak-Rapid Inc.	C
1009	Panhandler Div., Sanitary Bag Co.	H
1115	Paniplus Co.	H
1216	Paramount Paper Prods.	D
1417	Parker Metal Decorating	D
724	H. Pauk & Son Mfg. Co.	H
1343	Penick & Ford Ltd.	B
927	Penny Plate Inc.	D
642	Peterson Oven Co.	A
1220	Pfeil & Holing Inc.	H
630	Fred D. Pfening Co.	A
276	Pillsbury Mills	B
923	J. C. Pitman & Sons	F
168	C. M. Pitt & Sons	H
845	Pneuma-Flo Systems	A
211	Pollock Paper Corp.	D
728	Procter & Gamble	B
939	Pure Gluten Food Co.	B
	Q	
1415	Quake Maintenance Co.	F
675	Quality Bakers of America Coop., Inc.	H
1428	Quartermaster Food & Container Inst. for the Armed Forces	H
	R	
530	Read Standard Corp.	A
502	Red Star Yeast & Products Co.	B
170	Reeves Pulley Co.	A
944	Rex Novelty Co.	G
782	Russell-Miller Milling	B
	S	
1359	Saunders Mfg. & Novelty Co.	G
1336	J. Sausville Sons	H
1410	Saylor Homogenizer	A, B

(*Continued on next page*)

*Equipment and supplies made by the exhibiting firms are designated by letters as follows:

A—Processing Equipment as coaters, depositors, proofers, mixers, sifters, kettles, cookers, freezers, filters, pans and trays, homogenizers, comminutators, moulders-dividers, depanners, ovens, coolers, pan greasers, scales, etc.

B—Ingredients including flavors, mixes, icings, prepared fruits and nuts, emulsifiers, pan greases, enrichment products, sweeteners, enzymes, egg products, etc.

C—Packaging Equipment including markers, scales, labelers, fillers, closers, etc.

D—Packaging Supplies as containers, liners and pans, labels, overwraps, etc.

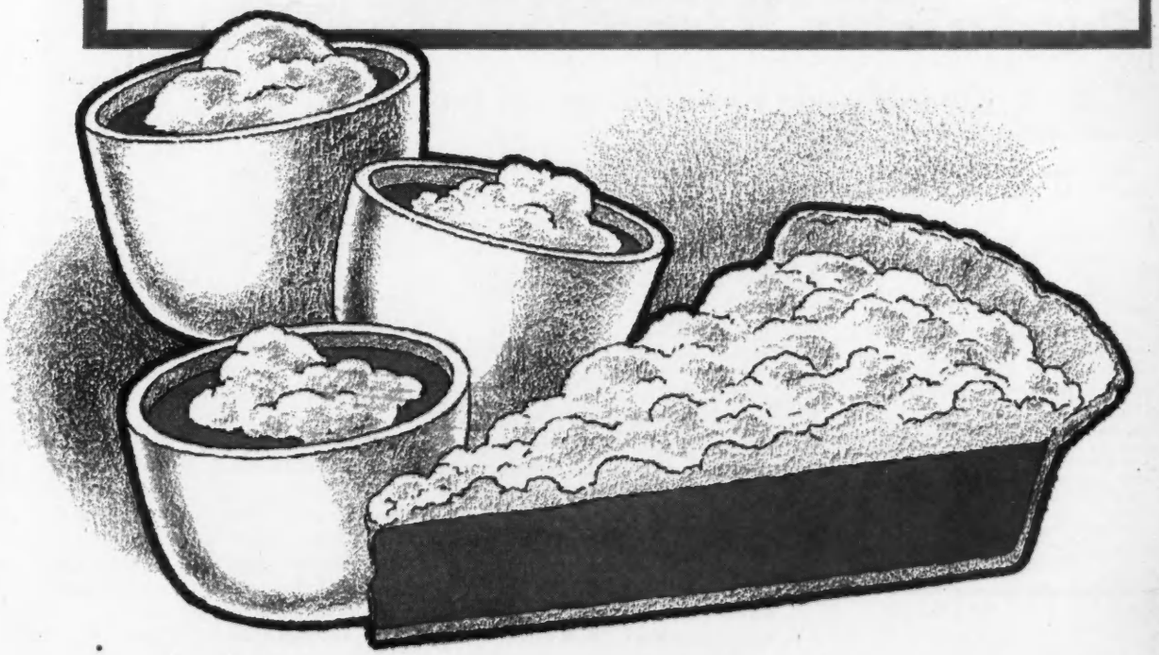
E—Materials Handling units including lift and highway trucks, skids and pallets, portable elevators, bulk handling units, conveyors, belting, etc.

F—Maintenance and Sanitation equipment and supplies as brushes, valves and pipe fittings, washers and washing compounds, towels, gloves, germicides, etc.

G—Merchandising as display cases, advertising and sales services, ornaments and decorations, etc.

H—Other firms and those not classified at press time.

FLAVORS for PUDDING POWDERS and PIE FILLERS



Why is today's housewife so enthusiastic about these popular corn starch pudding powders and pie fillers? For many good reasons: They are quick and easy to prepare, and they provide appetizing, nutritious, fine-textured, deliciously-flavored desserts at very low cost. All she has to do is add milk and water, stir or cook—a few minutes and her job is done.

The manufacturer's job of producing these products is easy, too—with the proper mixture of corn starch, sugar and vegetable gums, plus distinctive, rich, flavor-color combinations that require only simple mixing for uniform distribution throughout the powder base. Here are some of the special, long-shelf-life FRITZSCHE flavors that are helping to make new friends and new profits for dessert powder manufacturers everywhere:

OIL CHOCOLATE IMITATION #2
FRITZBRO BUTTERSCOTCH IMITATION #1
FRITZBRO LEMON CONCENTRATE
EKOMO VANILLA IMITATION
FRITZBRO COCONUT IMITATION #1 SPECIAL
FLAVOR COMPOUND #10538 CHERRY IMITATION
FLAVOR COMPOUND #10423 PEACH IMITATION
FLAVOR COMPOUND #10539 BANANA IMITATION
MODERN IMITATION FLAVOR BASE WILD STRAWBERRY
EKOMO RASPBERRY IMITATION
ESSENCE ALMOND
FRITZBRO AROME MAPLE IMITATION
OIL CUSTARD FLAVOR IMITATION
FRITZBRO COFFEE CONCENTRATE EXTRA
ESSENCE CARAMEL IMITATION #3

For test samples of these flavors, please address us on your letterhead specifying the flavors desired.

FRITZSCHE *Established* 1871
Brothers, Inc.

PORT AUTHORITY BUILDING, 76 NINTH AVENUE, NEW YORK 11, N. Y.

BRANCH OFFICES *and* *STOCKS: *Atlanta, Georgia, Boston, Massachusetts, *Chicago, Illinois, Cincinnati, Ohio, Cleveland, Ohio, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California, St. Louis, Missouri, *Toronto, Canada and *Mexico, D. F. FACTORY: Clifton, N. J.

When inquiring check FP 3343 opposite last page

Our baker and the second most beautiful girl in the world

The young lady in the picture has brought home from London the second prize in the 1954 international beauty contest. The gentleman is by trade a master baker. Both are employed by Eastman Kodak Company in essentially similar jobs, for which each has high qualifications.

She earns her pay by having her picture taken on our color film all day long. The film is then sent to our processing stations all over the world and returned to Rochester to maintain a constant check on processing quality and uniformity. With all the continual chemical and physical control procedures, we still want the assurance of a pretty girl's picture.

He, surrounded by chemists, bakes all day. The chemists keep measuring the exact monoester content* of every production run of Myverol® Distilled Monoglycerides. They also make other chemical tests known to measure factors important for food components. No Myverol order leaves the plant until these chemists are satisfied; but then, just to make sure that some chemically negligible factor has not tripped us up, we have our master baker bake with it and evaluate his results with a skeptical old pro's eye. If he's happy, then we are too, as we go home to dinner clutching our individual fair shares of his labors.

For technical counsel and a cost analysis on the use of Myverol Distilled Monoglycerides in any food fat product write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • W. M. Gillies and Company, Los Angeles, Portland, and San Francisco • Charles Albert Smith Limited, Montreal and Toronto.

*It runs around 90 per cent—2 or 3 times that of conventional mono-di food emulsifiers—and this results in such baking industry economies that the demand grows and grows. That 90 per cent does not include 6 or 7 per cent of "2-monoesters," which our laboratory has found to contribute on its own to baking properties.

distillers of monoglycerides made from natural fats and oils

DPi

Also . . . vitamin A for foods and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

When inquiring check FP 3344 opposite last page

baking show

(Continued from preceding page)

Booth	Exhibitor	Product*
H-20	C. Schmidt Co.	A, G
849	Seymour Foods, Inc.	B
D-2	Sherman Paper Products Corp.	D
A-1	J. R. Short Milling	B
1035	Siebel Publishing Co.	H
824	A. O. Smith Corp.	E, F
547	Sparkler Mfg. Co.	A
1120	Spaulding Fibre Co.	D
1059	Specialty Bakers' Services, Inc.	G
1124	Spencer Turbine Co.	F
668	A. E. Staley Mfg.	A, B, E
Stage	Standard Brands, Inc.	B
1150	Standard Casing Co.	E
110	Standing Folding Trays Corp.	C, D
1013	Stein Hall & Co.	B
1148	Sterwin Chemicals	B, F
273	F. M. Stewart	A
102	Stickelber & Sons	A
1339	Nathan Straus-Duparquet	A
937	Sugar Information	B
1427	Sullivan Dry Spray Co.	A, F
1419	Superior Separating Co.	E
309	Sutherland Paper Co.	D
1155	Swift & Co.	B
1051	Swiss Imports	G, B, D
	T	
1149	G. H. Tennant Co.	F
G-13	Terriss Div., Consolidated Siphon Supply Company	A, E, F
162	Thompson Machine Co.	A
1442	Toledo Scale Co.	A, C
636	Tote System	A
217	Traulsen & Co.	A
935	Triangle Package Machinery Co.	C
114	Triumph Mfg. Co.	A
758	Tunnell Publications	H
1430	C. E. Twombly Co.	H
	U	
1253	Unger Co.	H
H-10	Union Sls. Corp.	B
230	Union Steel Products Company	A, C, E, G
848	U. S. Army, Quartermaster Corps	H
1415	U. S. Dept. of Commerce	H
1049	U. S. Slicing Machine	C
831	Universal Oven Co.	A
841	Universal Sales Inc.	E
1421	Utility Truck Distributors, Inc.	E
	V	
1314	Vacu-Blast Co.	H
474	Vacuum Fat Filter Co.	F
829	Valley Evaporating	B
1111	R. T. Vanderbilt Co.	B
1020	Victor Balata & Textile Belting Co.	E, F
1058	Victory Metal Mfg. Corp.	A
1248	Voss Belting & Specialty Co.	E
	W	
1218	Wallerstein Co., Inc.	H
1241	Ward Motor Vehicle Co.	E
1126	Waukesha Foundry Co.	F
1156	Waxed Paper Merchandising Council	D
1214	Harry Wender, Inc.	H
1054	Werner Machinery Co.	A
938	Wesson Oil & Snowdrift Sls, Co.	B
117	West Disinfecting Co.	F
1255	Westco Products	H
267	Western Condensing	B
722	Wilder Mfg. Co.	A, E
1446	White Motor Co.	E
1224	Willmark Sls. Co.	H
266	Winkler Baking Machine	A
1138	Wire & Metal Mfg. Co.	E
	Y	
1424	Yuenger Corp.	G
	Z	
1412	Zeropack Co.	B
1053	Zira, Inc.	H

• "THAT'S INTERESTING"

'Everything and the Kitchen Sink'

This 160-page book tells the story of "how the first century of industry created our first century of good living". It provides an intimate look at America at work and in the home—from 1855 to the present. The text is highlighted with dozens of wood cuts and drawings that authentically portray early methods of farming, transportation, communication, and manufacturing. Early photos, along with striking news pictures, dramatize the contrast between old and new. The reader finds himself in an interesting panorama of mill wheels, the Erie canal, stage coaches, side-wheel river boats, horsehair sofas, kerosene lamps, the first skyscrapers, Model T's, crystal-set radios, and a succession of recent developments down to the jet plane.

Tribute is paid to the pioneers in business and invention, among them Richard Teller Crane, founder of the Crane Co., sponsors of the book. Published to commemorate the Centennial of the Crane Co., the book touches on all facets of American industry, its achievements, and its future.

The author says in conclusion that through it "the average man and his family will have within grasp everything that the mind and spirit of mankind have embodied in their great dream—yes, everything and the kitchen sink."

("Everything and the Kitchen Sink", 160 pages, $4.00. Published by Farrar, Straus & Cudahy, New York, N. Y.)

(Continued on page 74)

FOOD INDUSTRY NEWS

New Plants
Companies
Personalities

Revolutionary type of frozen food transport is used in test shipment of three tons of Libby's frozen food to Venezuela on Grace Line's Santa Monica. At Continental Freezers' warehouse, food is loaded into special container built by Aluminum Company of America.

W. C. Mitchell, Libby vice president, and Tjae Reiner, engineer, check super-chill shipping container

Temperature within is brought down to minus 150° F. As indicated in previous tests, temperature on arrival at Caracas (in about two weeks) will still be below 0° F. Libby officials look for this development to open up new food export markets. They are now playing an increasingly important role in US economy. USDA reports that farm exports in the last fiscal year increased 7% over level of previous year. Venezuela buys $64 million worth of US food and fiber products annually.

The super-chill method involves no mechanical refrigeration, dry ice, or repeated reicing. It permits utilization of cheapest kind of transportation. Containers can carry foods direct to warehouse or store. Vans embodying design of the aluminum containers are foreseen. Libby, McNeill & Libby has been working on this process for a period of years with the inventor, W. L. Morrison.

Minute Maid-Snow Crop Frozen Foods president, John M. Fox, announces election of Henry Cragg to the new post of administrative vice president. Cragg's administrative responsibilities will include corporate production planning and control, traffic, purchasing, personnel and operations research. Prior to this appointment he was in charge of Florida manufacturing activities.

Thrift plan for du Pont employes will add 25c to every dollar they save. Entirely voluntary, the plan sets up an incentive for saving regularly. The company contributes to a trust fund 25% of the amount saved by each worker. This money will be used to purchase du Pont common stock for him. Employes' own savings, deducted each pay period, are put in US savings bonds, Series E. Minimum monthly amount that can be saved is $12.50 and the maximum, $37.50. Program is subject to clearance with several Federal agencies.

(Continued on next page)

Staley's® PRODUCTS FOR BETTER FOOD PROCESSING

BULK SWEETENER HANDLING SPEEDS PRODUCTION, CUTS COSTS

Sweetose Syrup, piped directly from your storage tanks, travels in a closed, sanitary system. A meter measures just the right amount of sweetener, then stops the flow automatically. This automatic handling system stops "manhandling" of sweeteners, improves quality control, cuts costs. See about automatic handling in your plant now.

Sweetose *never* masks a flavor!

Crystal clear, Sweetose syrup brings out full, fine flavor, retains natural color, improves texture.

Want to give your processed foods a real profit-building competitive advantage? You can . . . with easy-to-use Sweetose, Staley's enzyme-converted corn syrup. Used with sucrose, Sweetose gives accurate sweetness control that means well-balanced, unmasked, delicious flavors. This remarkable liquid sweetener helps retain fresh, natural color and body and greatly improves the eye appeal of your products. Try Sweetose in your products soon, and prove its sales-building advantages to yourself. See your Staley representative or write us direct for more information.

PRODUCTS FROM CORN Staley's AND SOYBEANS

OTHER QUALITY PRODUCTS
Regular, Intermediate Corn Syrups
Canners Starches
Refined Corn Oil
Zest®, Monosodium Glutamate
Sta-Sol® Lecithin

Sweetose® SYRUP

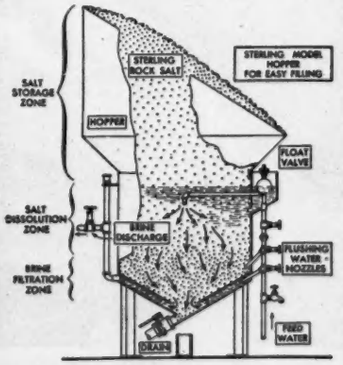
A. E. Staley Manufacturing Company, Decatur, Illinois

When inquiring check FP 3345 opposite last page

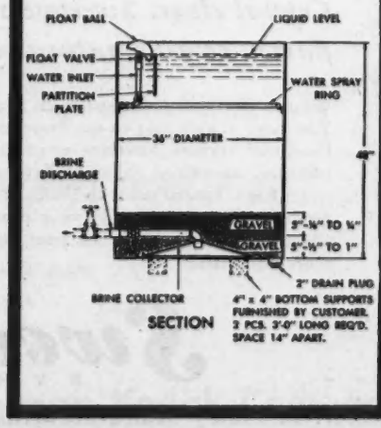
BRINE HEADQUARTERS

The great mines . . . the refineries . . . the years of teamwork with all brine-using industries . . . enable International to provide the equipment, methods and know-how to make better brine at lower cost with greater efficiency . . . in any plant . . . for any industry.

THE STERLING MODEL LIXATE ROCK SALT DISSOLVER



THE STERLING EVAPORATED SALT DISSOLVER



From Sterling Rock Salt or Evaporated Salt

BRINE, AUTOMATICALLY MADE . . . ALWAYS SATURATED . . . PIPED TO ALL POINTS OF USE

For consultation without obligation, with a qualified International Industrial Engineer, write . . .

INTERNATIONAL SALT COMPANY, INC.
INDUSTRIAL DIVISION • SCRANTON 2, PA.

SALES OFFICES: Atlanta, Ga. • Chicago, Ill. • New Orleans, La. • Baltimore, Md. Boston, Mass. • Detroit, Mich. • St. Louis, Mo. • Newark, N. J. • Buffalo, N. Y. • New York, N. Y. Cincinnati, O. • Cleveland, O. • Philadelphia, Pa. • Pittsburgh, Pa. • Richmond, Va.
ENGINEERING OFFICES: Atlanta, Ga. • Chicago, Ill. • Buffalo, N. Y.

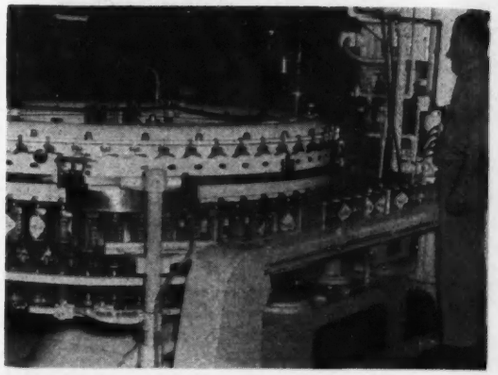
When inquiring check FP 3346 opposite last page

industry news

(*Continued from preceding page*)

James T. Schmuck, general sales manager of Seymour Foods, Inc., Topeka, Kan., announces appointment of John T. Maas as director of the company's new bakery division. A number of new egg products, designed to aid in streamlining production for cake bakers, will be marketed through the division.

Coca-Cola in cans for the first time stems from an order for 100,000 cartons of 24 12-oz cans for military personnel in the Far East. The Coca-Cola Bottling Company of California canned the product at its plant in Hayward. The 12 oz containers were supplied by American Can Co. During World War II, the Coca-Cola Company supplied



Part of canning line at Hayward Coca-Cola plant

materials and equipment for the manufacture of Coca-Cola by the Army. Instead of bottles being shipped across the sea, bottling plants followed the troops.

C. L. Rumberger, vice president in charge of research and quality control, H. J. Heinz Company, and a member of the board of directors, has been elected a member of the Agricultural Department Committee of the U.S. Chamber of Commerce. The committee deals with national problems affecting agriculture.

E. Everett Meschter recently left his position as vice president in charge of production of The American Preserve Co. to take over as sales manager of the 88-year-old organization. Concurrently the company is beginning its first organized advertising for Schimmel brand preserves and jellies. Commenting on the breaking of a company tradition in becoming an advertiser, Meschter said, "We recognize that grocery retailing trends have changed and have forced manufacturers to assume greater marketing burdens. Plans for advertising are being developed to enhance the importance of the Schimmel brand."

T. L. Hugé became president of The Hugé Co. last July, succeeding his father, Louis G. Hugé, who died on the 9th of that month. The elder Mr. Hugé was one of the pioneers in the development of materials and methods for food plant insect and rodent control. Mr. T. L. Hugé has been active in the company for the past 10 years as vice president, and is technical director of the American Sanitation Institute.

National Starch Products Inc. has begun construction on an addition to present Alexander Research Laboratories at Plainfield, N. J. Plans call for a one-story building of 30,000 sq ft located on an eight-acre tract. It is part of a $3,500,000 company-wide expansion program.

Paul C. Sarrett has been appointed traffic manager of the Florida Citrus Exchange, succeeding H. S. Weber, who has retired after 35 years of service. Sarrett came to the Exchange from Pasco Packing Company in 1952.

New plant of Campbell Soup Co. at Napoleon, Ohio is now under construction. Plant has a total floor area of approximately 20 acres. Various buildings will house facilities for processing, can-making, cold storage, warehousing, laboratory, and air-conditioned plant offices. Lockwood Greene Engineers, Inc. New York 17, N.Y. are architects-engineers of the project.

Dr. C. L. Hankinson has been appointed vice president, manager, and technical director of Tony Downs Foods Co., St. James, Minn., producers of Duncan Hines Frozen poultry products. He was formerly with the Milwaukee research laboratories of the Carnation Co.

Nelson S. Carpenter has been named manager of the Tony Downs frozen food plant. He was formerly assistant manager of the Birds Eye Waseca, Minn., plant.

Continental Baking Company has purchased a tract in Tulsa, Okla., for construction of a new bakery to serve the area. Floor space will be about 80,000 sq ft. New plant's production will be distributed in about 25 counties in northeastern Oklahoma and neighboring Kansas.

American Machine and Foundry Co. and Continental Can Co. are among eight industrial organizations that plan to build the first nuclear reactor to be owned and operated by private industry. The Industrial Reactor Laboratories will be under direction of a leading university. Ownership will be vested in a corporation in which each participating company will have an equal stock interest. Part of the operating time of the reactor will be offered for medical research.

Bernhard Illfelder has been appointed director of production for all Frost-O-Fast products of Basic Foods Sales Corp., Englewood, N. J. Mr. Illfelder was formerly with Doughnut Corp. of America and Fleetwood Baking Co., Mount Vernon, N. Y.

Pet-Ritz Foods, Beulah, Mich. processors of frozen fruit pies, has purchased Crystal Canning Co., Frankfort, Mich. according to George K. Petritz, president. Ben F. Batcheler, formerly general manager of Fruit Growers Cooperative, Sturgeon Bay, Wis. has been named vice-president in charge of the Crystal operation. He is currently serving as president of the National Red Cherry Institute.

If you use MILK or

N.F.D.M.S.

...see how

Sweet Dairy Whey

can improve quality and reduce costs TOO!

SWEET DAIRY WHEY is an improved dairy ingredient that perfects the richness of "old-fashioned flavor" in modern food preparations. It improves color, texture, shelf-life and appearance of food products. And it can save you money too — up to 50% of your dairy ingredient costs — by replacing part or all of your present dairy solids.

If you use milk, or nonfat milk products, it will pay you to investigate Sweet Dairy Whey. It's spray dried, meets or exceeds U. S. Extra Grade standard. In addition to extensive use in the baking and meat industries, here are just a few of the ways Sweet Dairy Whey is being used to improve food products today:

Sherbet — for better control over texture, appearance, flavor. Reduces flavoring costs, too.

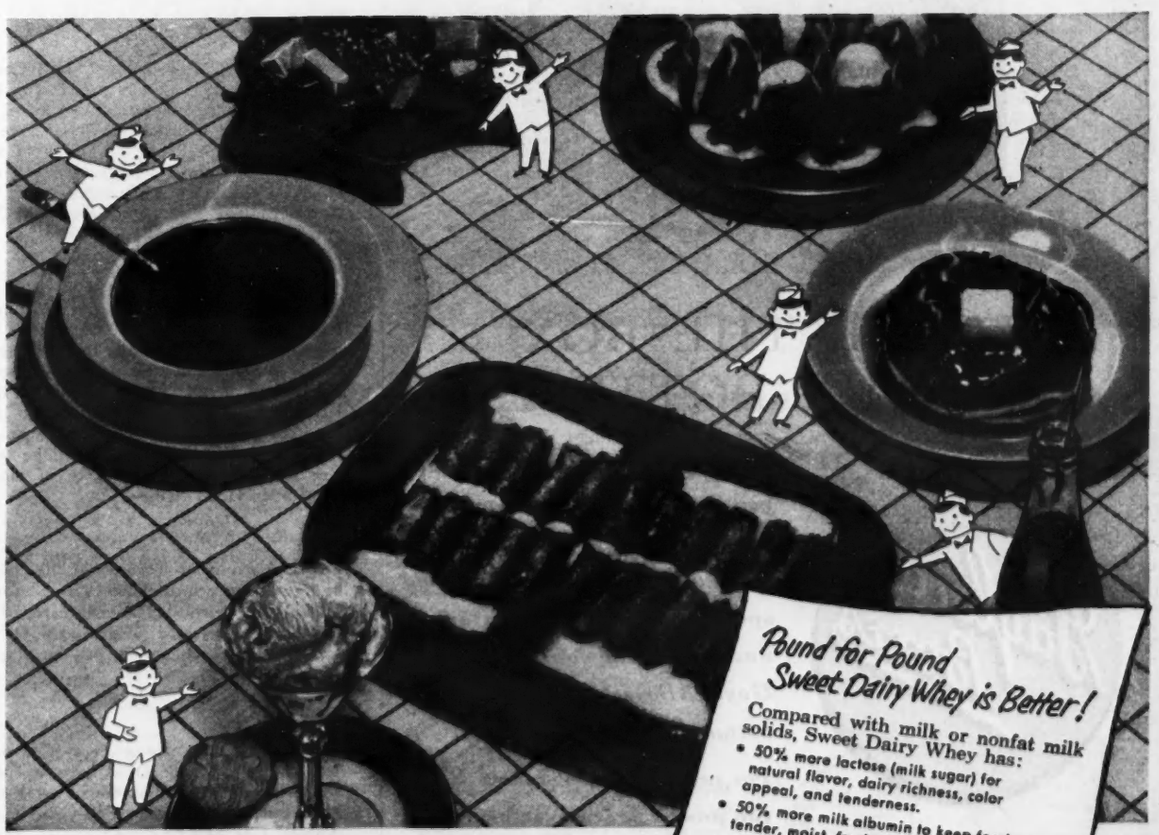
Candy — Sweet Dairy Whey preserves natural fresh flavor, texture and sweetness longer . . . provides superior eating qualities.

Cream-style foods — for smoother heavy-bodied cream soups and sauces with natural flavor. Improved reconstituting qualities.

Tomato soups — for greater heat stability, more original tomato taste and no separation before or after sterilization.

Prepared mixes and batters — for richer, golden-brown color, appealing milk flavor, and for tender, fluffy texture.

Soft drinks — for improving body characteristics in fruit juice type drinks . . . helps achieve proper "cloudiness" effect.



Pound for Pound Sweet Dairy Whey is Better!

Compared with milk or nonfat milk solids, Sweet Dairy Whey has:

- 50% more lactose (milk sugar) for natural flavor, dairy richness, color appeal, and tenderness.
- 50% more milk albumin to keep food tender, moist, fresh — longer.
- 25-50% lower cost . . . plus more of the essential milk constituents, more milk minerals and B-complex vitamins. And it's casein free!
- Uniform quality the year around. Prompt delivery.

Write Technical Service Department for additional information and working samples

Sweet Dairy Whey

A "VALLEY FRESH" PRODUCT

WESTERN CONDENSING COMPANY
APPLETON, WISCONSIN
World's Largest Producer of Whey Products

32 plants coast-to-coast

When inquiring check FP 3347 opposite last page

CHECK THE BOX AT THE BOTTOM

Gaylord Boxes

CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES
KRAFT BAGS AND SACKS

... to see how Gaylord Boxes save you money in warehousing. They make possible taller stacking to better utilize your valuable storage space. The superior materials and precision construction of Gaylord Boxes help prevent "stack-bottom bulge."

For proof of how Gaylord Boxes can protect your profit, as well as your product, call your nearby Gaylord office.

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

SALES OFFICES FROM COAST TO COAST ★ CONSULT YOUR LOCAL PHONE BOOK

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ASSOCIATION NEWS

Trade Associations
Technical Societies

"Marketing Problems in the Milling Industry" will be the subject of a symposium during the American Chemical Society's 128th national meeting at Minneapolis, Sept. 11-16. Among the principal speakers will be Walter T. Blake, manager of Product Development, Pillsbury Mills, Inc., Minneapolis, who will discuss the commercial development of new food products, and R. J. Hoskins, Entoleter Div., Safety Car Heating & Lighting Co. Inc., who's subject will be "Selling New Equipment to an Old Industry."

The symposium will not attempt an organized analysis of the milling industry. Rather, it will take up specific problems met by firms who supply new processes to millers in marketing new products. Malcom R. Renfrew, Director of Research and Development, Spencer Kellogg and Sons, Inc., Buffalo, N. Y., will preside.

American Dry Milk Institute, Inc., Chicago, last month received the 1955 grand award (in its class) of the American Trade Association Executives for "outstanding service to the industry which it represents, as well as to the American Public." The award was made specifically for the Institute's successful technical research program entitled, "A Revolutionary New Process for Bread Making". This is the ADMI stable ferment process.

An actual labor-management arbitration session will be presented, for the first time, on closed-circuit television. Occasion will be the fall personnel conference of the American Management Assn., to be held in New York, Sept. 26-28. Those attending will sit in via television while a company and union argue a disputed issue before an impartial arbitrator, who will hand down a binding decision. It will be televised on a full size screen before an audience of more than 1,000 in the Statler Hotel ballroom.

Fire and explosion hazards in the food industries will be one of the principal topics at the food industry safety session of the 43rd National Safety Congress and Exposition, to be held in Chicago, Oct. 17-21. Another feature of the convention will be a symposium on materials handling.

Secretary of Agriculture Ezra T. Benson and Senator John W. Bricker of Ohio have accepted invitations to address general sessions of the 1955 convention of the American Bakers Assn. This year the ABA meets at Atlantic City, Oct 1-6.

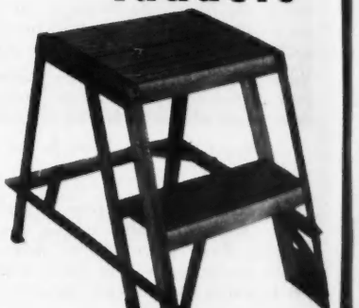
Pittsburgh section of the American Institute of Food Technologists installed C. J. Steinicke, supervising brewmaster of the Duquesne Brewing Co., as chairman during the first executive meeting of the year.

National Assn. of Hotel & Restaurant Meat Purveyors meet at Miami Beach, Oct. 23-26. Ralph Westerfield, Westerfield's, Chicago, is chairman of the annual meeting committee.

cleaner — safer

around Foods

ALCO-LITE aluminum ladders



scrub-em and steam-em safely!

Made of industrial type aluminum alloy ALCO-LITE type 700 and 701 Ladders are very easy to handle, extremely dependable and safe to use. They scrub and steam without swelling, roting, rusting or splintering. Last many years with almost no maintenance. All sharp corners that might snag clothing are eliminated. Roomy platform and steps are corrugated for users safety. Strongly braced and riveted throughout. More than meet ASA and Metal Ladders Association standards.

for more information and your copy of NEW General Catalog write to Dept. J2.

original manufacturer of aluminum ladders
ALUMINUM LADDER CO.
WORTHINGTON, PA.

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"Instrumentation Paces Automation" is the theme of 10th annual conference and exhibit of the Instrument Society of America, Sept. 12-16, Los Angeles. It will be the largest national industry event of its kind ever held in the West. Over 500 leading organizations from many parts of the world will display the latest in instrumentation and automation. In addition, there will be more than 325 technical and clinical sessions, according to exhibit manager Fred J. Tabery.

The John Scott scientific achievement medal, given in past years to Edison, Marconi, and Madame Curie, was this year presented to University of California Agricultural Engineer John B. Powers. He is on the teaching and research staff of the College of Agriculture and Experiment Station at Davis. He received the medal and award of $1,000 for developing an electronic machine for sorting lemons. It employs a principle applicable to sorting of other fruits and vegetables. A commercial model, about ready for tests, is expected to sort 40 lemons per second into four different color categories.

Convention and Exhibit

Schedule

Sept. 11-16. American Chemical Society, 128th National Meeting, University of Minnesota, Minneapolis, Minn.

Sept. 12-16. Instrument Society of America, 10th Annual Instrument-Automation Conference and Exhibit, Shrine Exposition Hall, Los Angeles, Calif.

Sept. 19-21. Society of Industrial Packaging & Materials Handling Engineers, 1955 "Short Courses", New York University College of Engineering, New York, N. Y.

Sept. 20-22. National Packaging and Materials Handling Show, Kingsbridge Armory, New York, N. Y.

Sept. 26-28. American Management Association, Personnel Conference, Hotel Statler, New York City.

Oct. 1-6. Baking Industry Exposition, Convention Hall, Atlantic City, N. J.

Oct. 4-6. International Association of Milk and Food Sanitarians, 42nd Annual Meeting, Hotel Bon-Air, Augusta, Georgia

Oct. 9-12. Produce Packaging Exposition and Conference, Conrad Hilton Hotel, Chicago, Ill.

Oct. 10-12. Truck Body and Equipment Assn., Morrison Hotel, Chicago, Ill.

Oct. 13-15. Second Symposium on Vacuum Techniques, Mellon Institute, Pittsburgh, Pa.

Oct. 17-21. 43rd National Safety Congress and Exposition, Conrad Hilton Hotel, Chicago, Ill.

Oct. 19-21. Symposium on Applications of Radioactivity in the Food and Food Processing Industries, Sheraton Plaza Hotel, Boston, Mass.

Oct. 23-25. National Pretzel Bakers Institute, 15th Annual Convention, Hotel Shoreham, Washington, D. C.

Oct. 23-28. International Assn. of Ice Cream Manufacturers, Milk Industry Foundation, Dairy Industry Supply Assn., Annual Conventions, St. Louis, Mo.

Oct. 27. National Pickle Packers Assn., Annual Convention, Sheraton-Blackstone Hotel, Chicago, Ill.

Oct. 31-*Nov.* 2. Packaging Institute Forum, Hotel Statler, New York, N. Y.

61,167 gauges...to deliver your Crane Valves 100% quality inspected

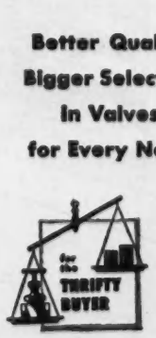
Care-how! A newly coined catch-phrase? Not at Crane! It is a rigidly-adhered-to principle of quality control—100 years old!

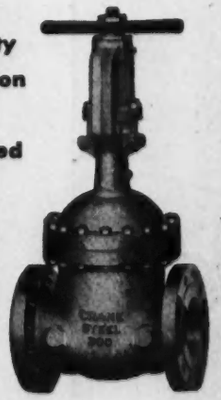
By way of example, the Crane technician in the photograph is checking the taper, size and guide slot alignment on gate valve discs. Every disc must correspond to the setting of the indicators—to tolerances of .001 inch plus or minus, on the taper, and .008 inch on the alignment of the slot guides. And Crane uses 61,167 gauges to insure dimensional accuracy.

Why this Care-how? To assure you of smoother, longer lasting valve operation, with lower maintenance and repair costs.

There you have the reasons why knowing and thrifty buyers prefer Crane valves . . . why industry uses more Crane valves than any other make! And the reasons why you should always buy Crane. Crane Co., General Offices, 836 S. Michigan Ave., Chicago 5, Illinois. Branches and Wholesalers serving all industrial areas.

Better Quality
Bigger Selection
in Valves
for Every Need





CRANE CO.

VALVES • FITTINGS • PIPE
KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY...1855-1955

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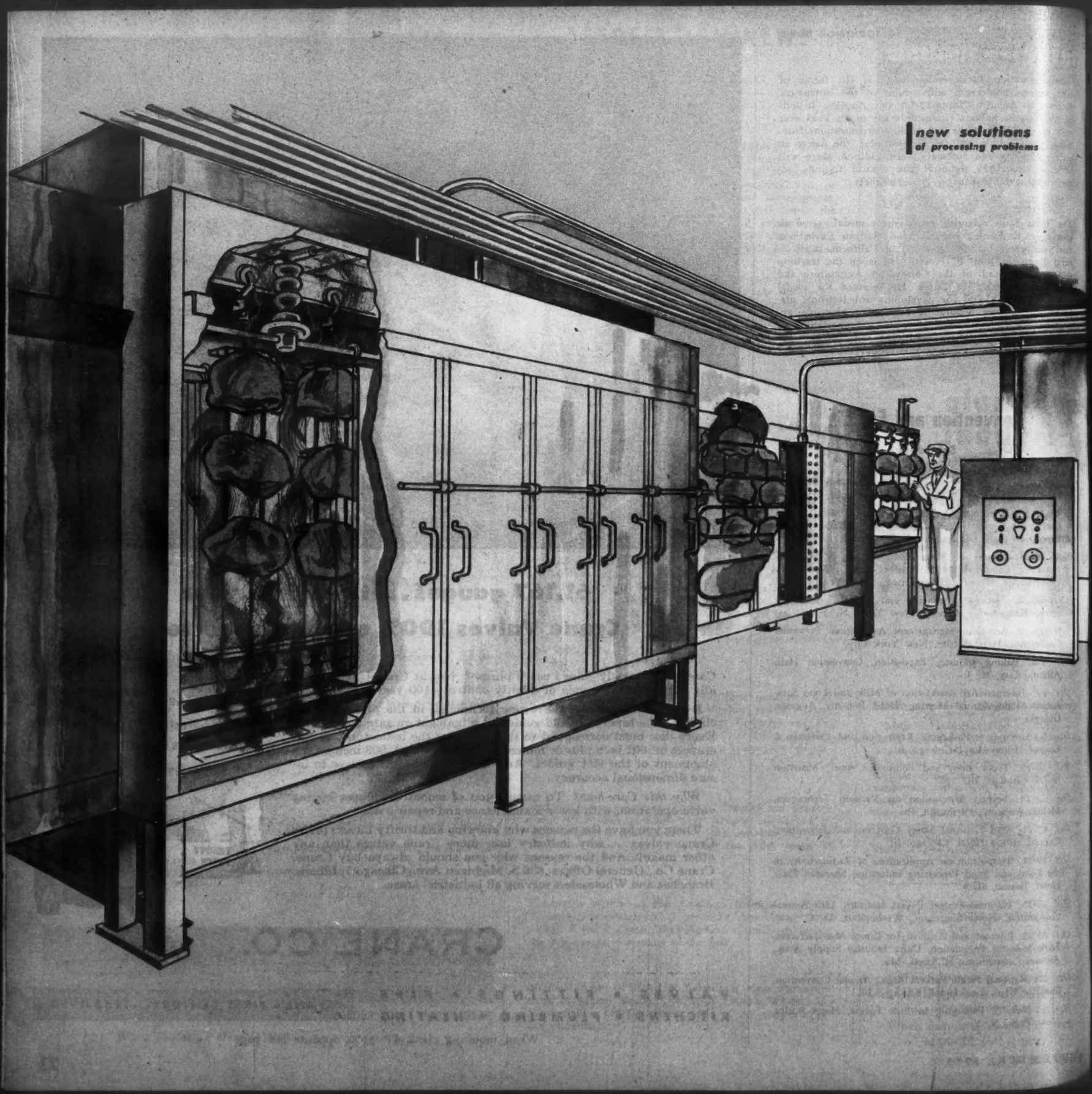

new solutions
of processing problems

Continuous process for smoked meats at Kingan, Inc. combines infrared heating and electrostatic smoking that

'hurls' smoke particles into meat

Requires only 3 min to develop normal smoke flavor in product . . . unit has capacity of 1800 lb/hr on bacon, 3000 lb/hr on hams . . . loaded and unloaded by a single man

Dr. M. C. BROCKMANN, Director of Research
J. W. HANLEY, Research Chemist
Kingan Inc.
as reported by FP staff

Continuous process for smoked meats, now out of pilot-plant stage at Kingan Inc., Indianapolis, Ind., combines electrostatic smoke deposition with infrared heating and drying. One man can operate the machine. He is able to load the continuous conveyor with meat products and, after it has moved through the ovens and electronic chamber, unload it upon its return to him (see photo top right).

In addition to bacon, other products such as boiled hams, hams and picnics for canning, jowls, Canadian bacon, regular hams, and frankfurters have been processed in the continuous unit. Satisfactory levels of smoke deposition have been observed in all cases. For products such as smoked hams for canning, the unit offers a special advantage in that a desirable level of smoke flavor can be attained with a minimum shrink. Additional advantages reported for method are its flexibility to production schedules and in recovery of edible fat drippings from bellies prior to smoking.

Heating, smoking operation easily varied to meet product requirements

The machine is approximately 70′ long and a little over 3′ wide (except smoke chamber). A continuous conveyor in the top of the unit carries the product to be smoked on specially designed hangers spaced about a foot apart. First 50′ of tunnel is devoted to a series of identical infrared ovens. Heating within these ovens is controlled by the power input to the infrared heating sections and by conveyor speed.

The smoking section, about 10′ long and 4′ wide, contains ionizers (charged wires and plates) which carry a potential of 25,000 to 40,000 volts. Product at ground (negative) potential passes between the ionizers. Smoke particles from conventional generator, enter smoke chamber from ducts in bottom and pass the ionizers, which literally "hurl" them into the meat. Amount of smoke deposition is controlled by conveyor speed, smoke density, position of louvres at bottom of smoke chamber, distance of ionizers from product, or ionizer voltage.

Smoke does not rub off

Upon leaving the electronic chamber, product passes into another (final) infrared oven which functions as "setting" chamber. The additional heating which the product undergoes (surface temperature about 200°F) sets the smoke so that it does not rub off or smear.

By separating the heating and smoking operations, the drip fats from the product (collected by slanting stainless steel pans in the bottom of the "oven" compartment) are left free of smoke particles and may be marketed by a higher grade.

In recognition of the inherent danger of high voltage equipment, several safety features have been incorporated into the design of the smoking unit. The chassis, conveyor, and all external parts of the smoke chamber are grounded. High voltage source is equipped with a circuit breaker which responds to any sudden upsurge of current demand. Smoking chamber can be entered from either side by removing the side panels. To prevent access to the charged ionizing equipment,

(*Continued on page* 52)

Comb, containing three 6 lb pieces of ham being placed on endless conveyor for movement through electrostatic smoking operation. Single operator can load and unload unit. Note hams in upper left of photo and in cart (foreground) have even coating of smoke. Product next moves to canning and cooking

Operator adjusts controls on automatic smoking process. Safety devices protect workers and equipment from high voltage

Skinless hams, after curing, are cut into 3 or 6 lb pieces prior to being hung on combs for movement through continuous smoking operation

FOOD...
and OPERATION CUE

Shortly after the atomic explosion at Yucca Flat, Nevada, on May 5 of this year, a team of food inspectors invaded the devastated area. A meal was prepared and eaten by members of the team, under emergency conditions amid the rubble of the blast — in a house 4700 feet from detonation point.

Food for the meal came from a freezer in the kitchen. The meal consisted of frozen chicken pot pie, peas, strawberries, and concentrated orange juice . . . dramatizing the safety of commercially packed foods in event of nuclear warfare.

This meal was one phase of Operation Cue, conducted by Federal Civil Defense Administration to help answer many of the questions about food supplies under conditions of atomic attack. A total of 908 cases, plus 3802 individual cans and jars of food products, were exposed at 15 locations.

In addition, the principal types of frozen foods were represented. All foods were housed in a variety of domestic and industrial structures, as well as being exposed in special, close-in locations to check the effects of high radiation flux and blast overpressures.

Food products in physically intact packages were found acceptable for use within the areas in which food inspectors were allowed to investigate. In general, canned, glass-packed, and frozen foods suffered less damage than the structures in which they were stored. Food products as close as 4700 feet from detonation point were substantially free from radioactivity. There was no bursting of packages by blast overpressures at this distance . . . damage was confined to causes from dislodgement, or from flying missiles (a 46 oz can of tomato juice, for instance, was penetrated by a flying sliver of glass, at 6800 feet from shot tower).

In order to discover whether exposure of foodstuffs to high radiation may modify the nutritive properties—or, in certain cases, even create toxic substances—long range animal feeding tests will be conducted . . . up to two years duration.

To see what damage a 30-35 kiloton atomic device will do to canned, glass-packed, and frozen foods . . . and the structures in which they are housed . . . turn the page.

BEFORE

2250 feet

AFTER

What happens to foods . . .

after the blast?

The series of photographs shown on these pages were taken before and after the "Operation Cue blast." In the photo above, you are looking down from the shot tower, 500 ft in the air. From here you can see the structures, and their relative distances from the blast point, of the scenes pictured in the columns at right.

As you follow from left to right in the picture series, the intensity of the blast diminishes. Severity of damage, of course, varied with the type of protection afforded the food products, as these photos demonstrate. The cased goods shown in the reinforced concrete above-ground shelter at 2250 ft apparently came through in better shape than the structure.

At 4700 ft, the structure whose interior is pictured is the same one-piece house (precast concrete slab, California earthquake-proof type) which is shown at the instant of blast in the first photo at bottom of the page. The house remained standing, although windows were blown out and furnishings were crushed and twisted. Food packages remained on the shelves in the kitchen cabinet. A two-story brick house in the same zone was completely demolished.

The two views at 5500 ft are interiors of a two-story frame house. The roof was torn off, windows blown out, and the painted siding facing the blast was badly scorched. Cases of foods in the basement were mostly undamaged, although some were thrown from shelves to the floor.

In the 6800 ft views, the building shown is an industrial type of heavy gage metal. It had damaged roof and sides, with windows blown out. Exposure of canned and glass-packed foods was arranged under retail conditions, and the photos indicate the results.

The nine pictures at top of the page were furnished through National Canners Association. The three photos at bottom are courtesy of National Association of Frozen Food Packers.

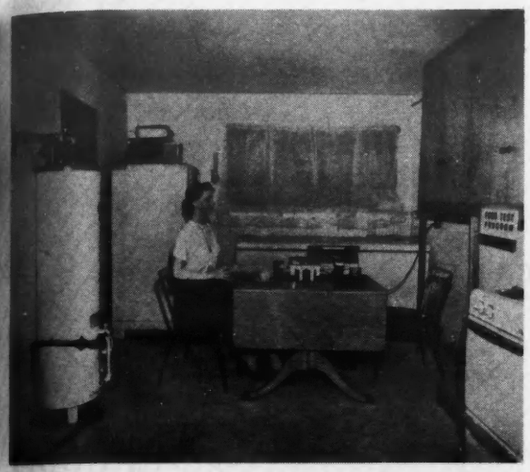
Cased Foods, Frozen Foods

4700 FEET. The first picture to the right, taken at the instant of the shock-wave, shows a pallet-load of canned goods being tossed over the desert area. In this house the emergency meal mentioned on previous page was prepared, using frozen foods from the freezer shown at extreme right. Interior shots of the house appear above.

1270 FEET. In order to study effects of induced radiation on foods, samples of frozen foods were placed close to the blast point (1270 and 2750 ft), and buried, so that they would not be blown away. The center photo shows recovery of the box located in 1270 ft zone.

4700 FEET. The blast sprung the hinges of the freezer in extreme right picture, located in the concrete house. However, the lid could be fastened shut to preserve refrigeration. Motor and compressor appeared in operable condition to observers.

BEFORE 4700 feet



AFTER

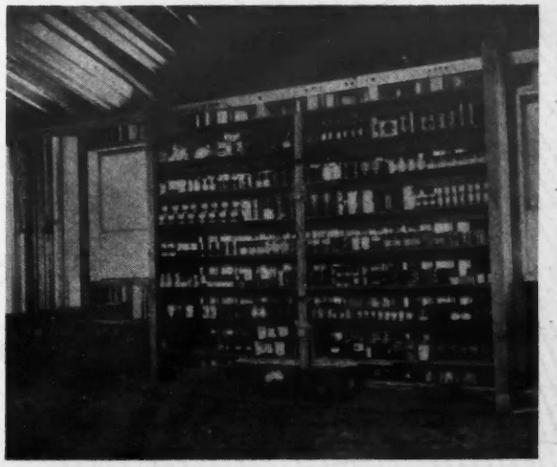
Whoosh . . . there goes a pallet-load of case goods (lower right), placed next to concrete house at 4700 ft. Shot was taken at moment of detonation

AFTER 5500 feet

AFTER

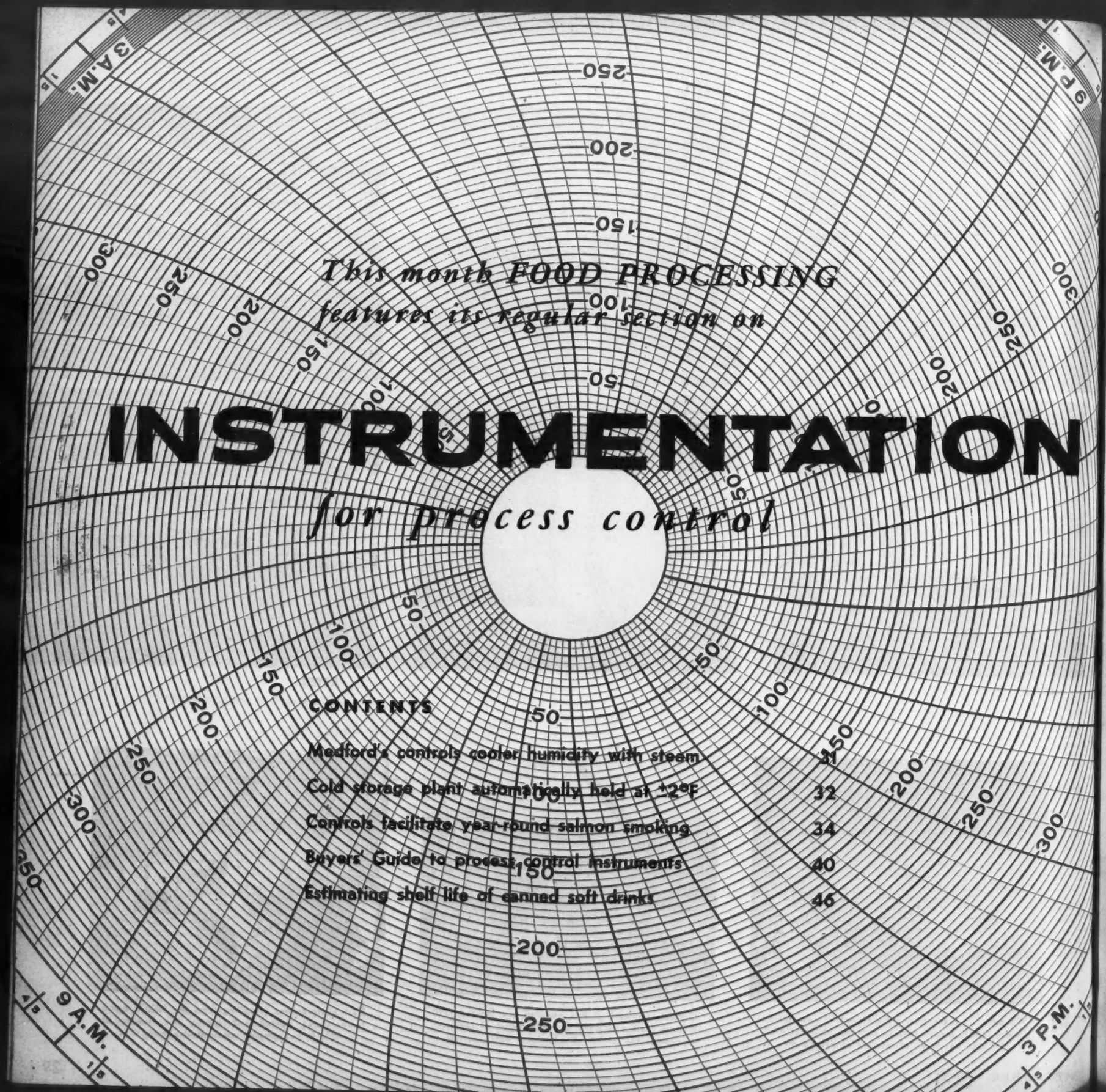
Control samples from this insulated box, located 1270 ft from blast, contained a small amount of radiation comparable to that of a luminous watch, or less

BEFORE 6800 feet



AFTER

Blast overpressures (resulting from the 6000°F bomb temperature) dented and sprung this freezer, at 4700 ft, but samples remained at a frosty 0°F



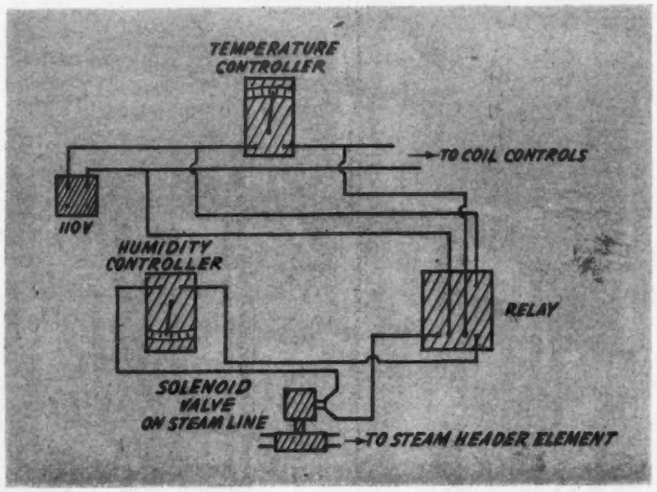
This month FOOD PROCESSING features its regular section on

INSTRUMENTATION

for process control

CONTENTS

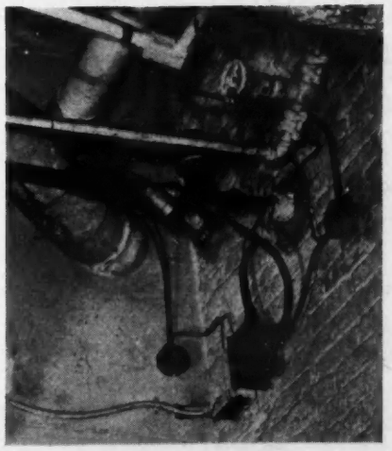
Medford's controls cooler humidity with steam	31
Cold storage plant automatically held at ±2°F	32
Controls facilitate year-round salmon smoking	34
Buyers' Guide to process control instruments	40
Estimating shelf life of canned soft drinks	46



Humidity controller actuating steam solenoid valve is connected in series with meat cooler temperature controller, shown at left. When room temperature is too high, temperature controller is actuated—at the same time relay disconnects humidity controller from system so that steam cannot be released while temperature controller operates. When pre-set temperature is reached, temperature controller goes off, relay hooks humidity controller back into system. If humidity becomes too high, controller actuates solenoid valve, steam is released into header, air near coils is warmed, temperature controller is actuated, refrigeration system again operates, and excess moisture is collected

Medford's, Inc., minimizes carcass smear, dripping wall and ceiling problem by

controlling cooler humidity with steam heat system



Shown here is section of steam pipe header element, with impulse trap and solenoid valve hooked in. Solenoid is actuated by remote humidity controller

Problem: Cold winter weather in Chester, Pa. meant that meat cooler refrigeration units at Medford's, Inc. were often not actuated by thermostatic controls (set at 33° to 44°F for various rooms). During these periods, when there was no demand for refrigeration, there was also no control of humidity, since surface temperature of refrigeration coils was not much below freezing. Humidity often became so high as to cause dripping walls and ceilings, smear on carcasses.

A simple method of humidity control was sought so that excess moisture during these problem periods would be removed.

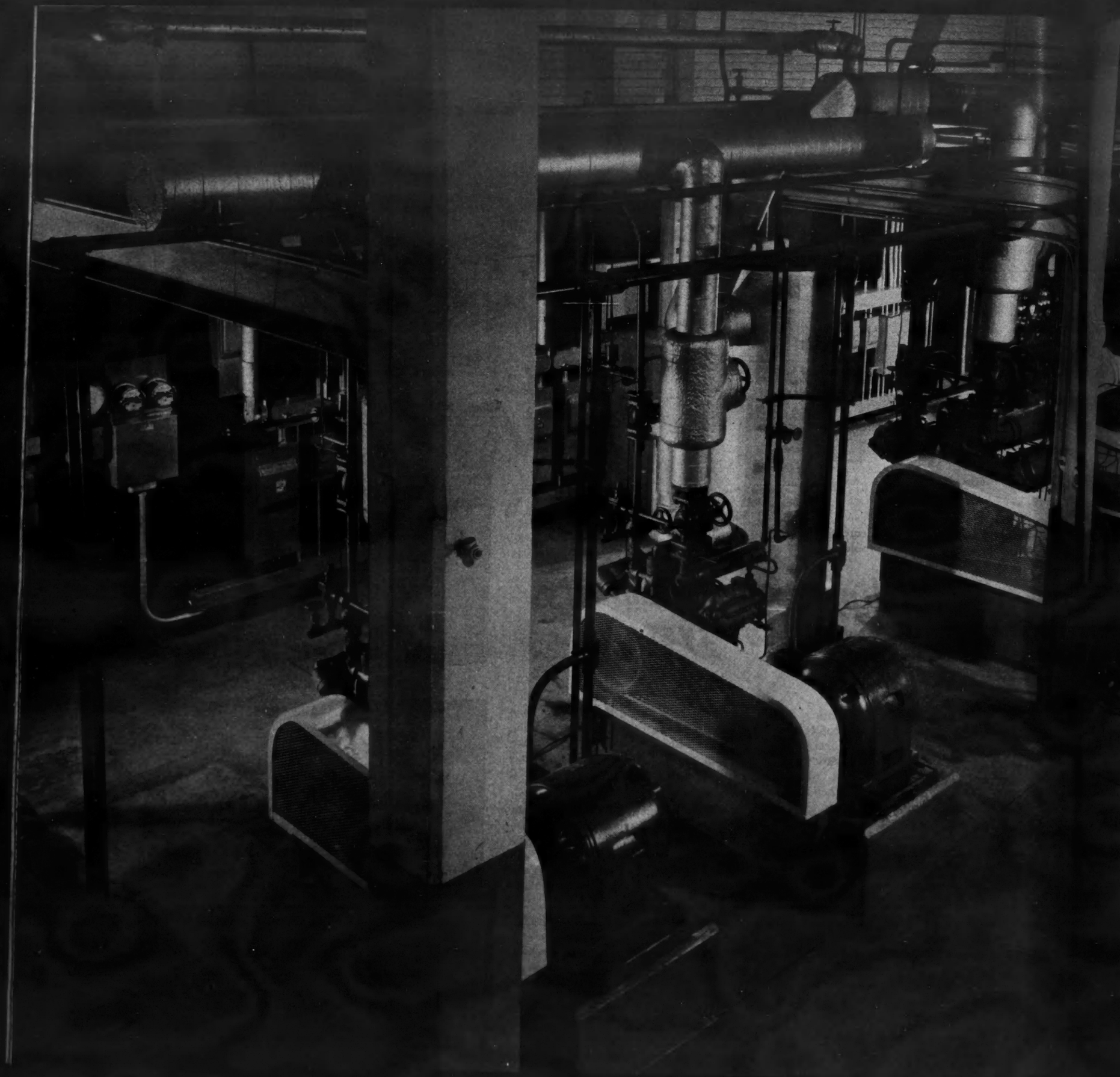
Solution: Plant engineer Albert Micka reasoned that in order to control humidity by collecting moisture on refrigeration coils, it would be necessary to keep the refrigeration system operating — temperature of coils would then be kept low enough to collect the moisture. In order to do this without disturbing temperature of room, heating elements were placed locally near the coils.

A humidity controller was connected in series with the temperature controller already in use, to make the system automatic. Operation of this system is explained in accompanying diagram. Humidity controller regulates solenoid valve on steam pipe element, which is located near coils and serves as heat source.

One major problem encountered in installation of steam pipe element was necessity for several vertical offsets — opening possibility of serious water hammer. Problem was circumvented by installation of impulse steam traps in these lines.

(*Continued on page* 48)

Carcasses at Medford's, Inc. are dry with little shrink because of humidity control system



INSTRUMENTATION

Refrigeration modernization at Beatrice Foods

pays for itself in two years

5 point refrigeration load control obtained when two compressors and two boosters automatically regulated in half stages

ORVILLE KAHRL, Ass't Chief Engineer
Beatrice Foods Co.
as reported by FP staff

Problem: Until 2 years ago, the Lackawanna Cold Storage Division of Beatrice Foods used two ammonia absorption systems installed in 1900 and 1916. These systems cooled two seven-story buildings, containing 700,000 cubic feet of cold storage space as well as freezer rooms.

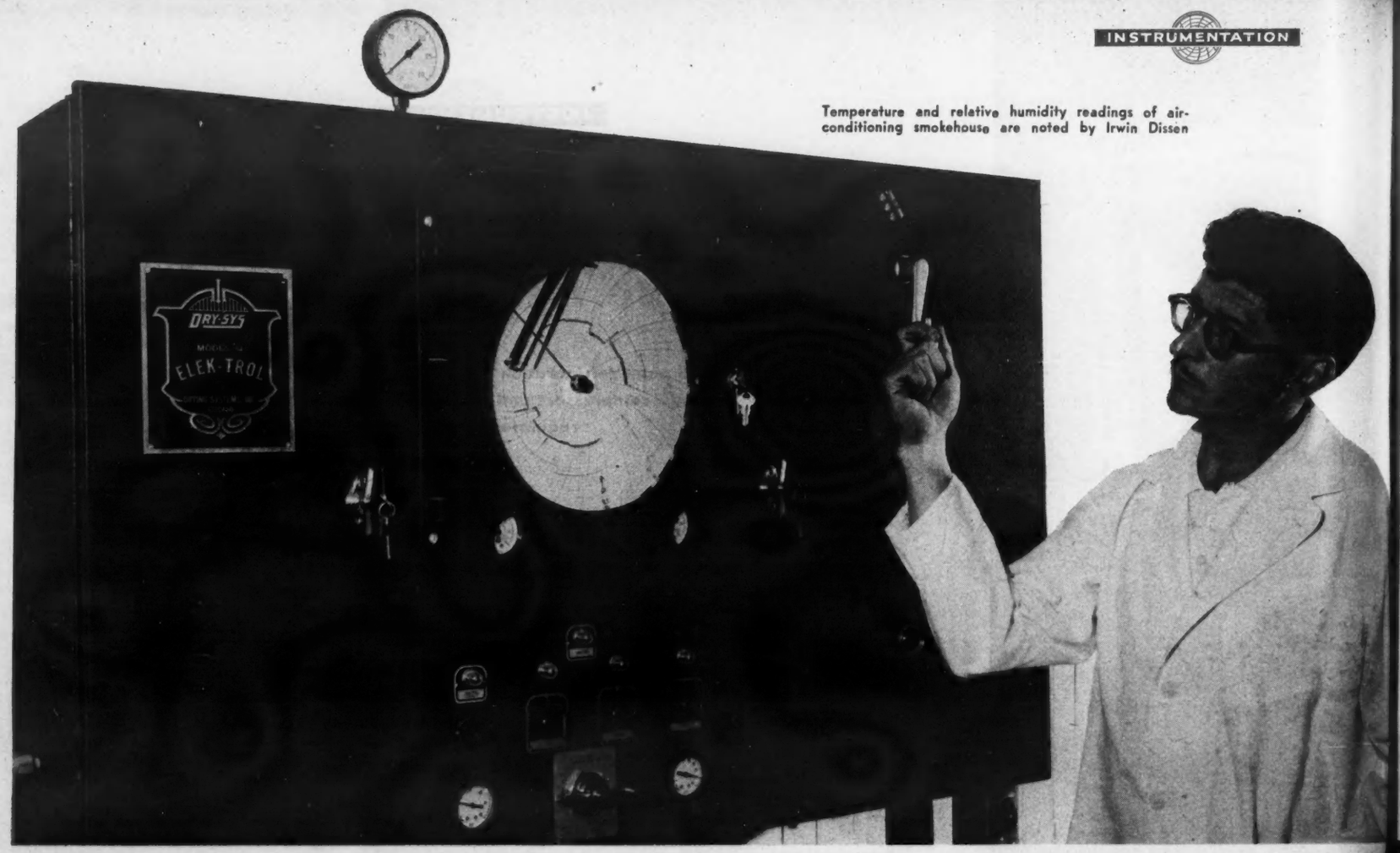
To keep these units operating properly, it required 3 firemen and 3 engineers (on duty 7 days a week), plus swingmen for relief. Since weather conditions and amount of product being moved in and out of storage greatly effects refrigeration requirements, it was necessary to continually make adjustments in the system. In spite of constant care, temperatures often fluctuated beyond the desired point.

Solution: A completely automatic two-stage system utilizing two electrically-driven, high-speed, six-cylinder ammonia compressors and two boosters has replaced the absorption system. Key to the automatic system is the temperature recorder-con-

(*Continued on page* 38)

Niles Turner, Chief Engineer, shown in front of panel board. Two-penned instrument at right (man's eye level) is brine temperature recorder, instrument at left records ammonia pressure of automatic system. New system required one-half the former space

Lackawanna Cold Storage Co., Div. of Beatrice Foods Co., Scranton, Pa. buildings have 700,000 cu ft of storage and freezer space. Automatic features developed for this 100 ton refrigeration installation allow it to operate unattended over week-ends



Temperature and relative humidity readings of air-conditioning smokehouse are noted by Irwin Dissen

automatic smokehouse permits smoking of salmon the year around

Using outside air, refrigeration-heating unit cools summer air, warms winter air; provides uniform, high quality product at all times

IRWIN DISSEN, Chem. Engr.-Plant Mgr.
Chicago Smoked Fish Co.
as reported by FP staff

Problem: Salmon, unlike other fish and meat products which are to be smoked require comparatively low temperatures (between 112 to 117°F) — and low relative humidity (less than 50%) during the drying and smoking operation. Too high a temperature tends to dry the surface faster than the interior — slowing drying rate — gives excess shrinkage, loss of fat, and produces a dry, undesirable product.

Formerly, the product was processed during favorable climatic conditions and then held in storage until sold. The longer the fish is held, the greater the potential for rancidity, with its resultant loss of quality and shortening of shelf-life.

Solution: Salmon sides are now dried and smoked at the Chicago Smoked Fish Co., Chicago, Ill., in an automatically controlled, air-conditioned smokehouse. Following "freshening"— soaking of pickled salmon in cold, moving water for approximately 38 hrs to remove excess salt — salmon sides are placed on combs and hung on

smoke trees in the smokehouse on the premise.

Using smoke, fresh and recirculated air, approximately 600 pieces (averaging 10½ lb) of salmon are dried and smoked in 7½ hrs.

To furnish drying air at the correct temperature (115°F) and moisture condition (50% RH), the supply air passes through mechanical refrigeration. As the air passes through the cooling coil, the moisture content is reduced to the predetermined dew point. A series of eliminators remove excess moisture or fog from the cooling coil. The saturated air then passes through a gas-fired heating assembly where the temperature is raised adequately to provide rapid drying of the product.

Upon completion of the drying cycle (5½ hrs), the dampers for the fresh air and exhaust air are automatically closed, by manipulation of the dry and wet bulb index on the recording controller. Next, smoke from hickory sawdust is drawn out of a smoke generator and forced into the smokehouse by fan in heater-cooler unit (see photo top right). Smoking operation requires 2 hrs.

Results: Daily variations of temperature and humidity which affected the smoking operation of salmon are no longer a problem. A more uniform product — from the standpoint of moisture content, taste, flavor, and appearance — has resulted. In addition, a permanent record of the temperature and relative humidity is made for the entire operation.

System is fully automatic from the standpoint that

(*Continued on page* 37)

Jack Dissen, Sales Mgr., inspects freshly processed salmon (lox) prior to packaging in well indentified, polyethylene bags (see trade mark at left)

A Foxboro M-40 Controller holds exact temperature during the critical 8 to 10 second cook in the continuous processing of starch jellies at Charms Co., Bloomfield, N. J.

...with Foxboro Automatic Temperature Control

The uniformity and proper gel strength of 4500 lbs. of starch jelly per hour depend on precise control of cooking temperature by a Foxboro M-40 Hyper-Reset Controller in a new, continuous process at Charms Co., Bloomfield, N. J.

The M-40's sensitive control bulb continuously measures temperature of the cooked jelly as it is pumped from the Votator* heat exchange unit of the process. The fast-acting Controller then immediately corrects the slightest tendency of the jelly temperature to deviate from pre-set control point by positioning the steam supply valve. The desired cook temperature is held precisely, even when load or steam supply pressure varies.

Whether your problem involves continuous or batch processing, you can count on Foxboro to furnish the proper control. Write for information or consult your Foxboro Field Engineer.

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THE FOXBORO COMPANY, 929 NEPONSET AVENUE, FOXBORO, MASS., U.S.A.

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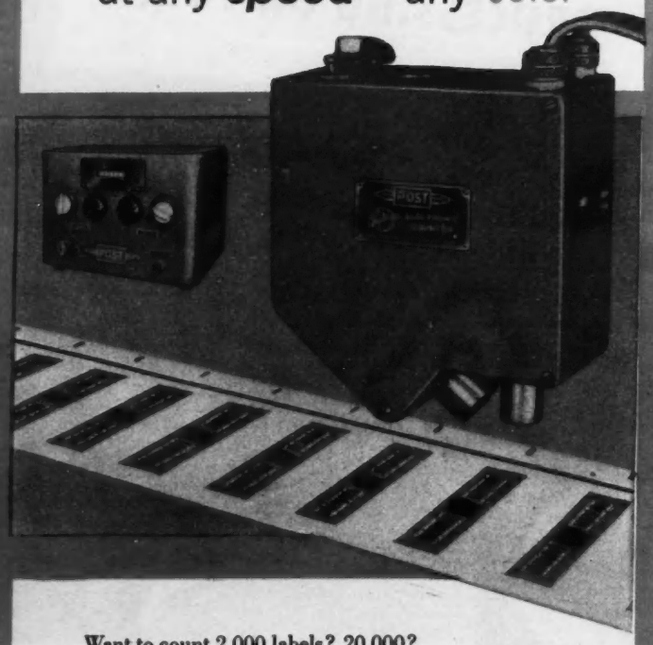
POST RH-1 Reflected Light Photohead . .

counts register marks at any **speed**—any color



Want to count 2,000 labels? 20,000? 2,000,000? You can do it electronically with the new Decitron accessory; RH-1.

A reflected light photohead sensitive to any color register mark automatically flashes a signal to a Decitron counter when the register mark passes through the light orbit.

Even at blinding speeds the RH-1 is completely accurate . . . eliminates guesswork on long pressruns, and saves costly overshipments.

A separate unit, with its own power source the RH-1 is not a counter itself, but relays counting impulses to any model of "Decitron" counter.

For details, write Post, Dept. 551.

POST

Electronic Products Division
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POST MACHINERY CO.
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When inquiring check FP 3352 opposite last page

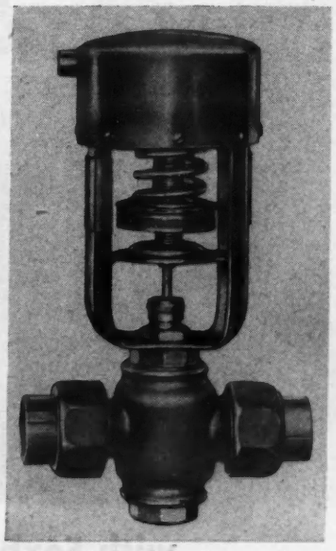
instrumentation

Has linear valve movement for controlling fluids pneumatically

Uses: As final control element in pneumatic and hydraulic systems to maintain pressure, temperature or level in tank, vats, processes.

Features: Has linear movement operating either pneumatically or hydraulically.

Description: Valve has cadmium-plated steel spring and two-ply seamless metal bellows. Sizes available range from ¼ to 4" in a wide variety of models, including direct and reverse-acting.



Handwheel adjusts linear valve movement

Maximum rating of pressure assembly is 50 psi. Normal operating pressure is from 3 to 15 psi. Valve stroke starts at 3 psi and is completed at 15 psi. Frame is stainless steel, valve either bronze or stainless steel trim. Adjustment is by handwheel acting against spring. Models are single-seated, double-seated or three-way.

(No. 992-D valves are product of Fulton Sylphon Division, Robertshaw-Fulton Controls Company, Dept. FP, Box 400, Knoxville, Tennessee. Check FP 3353 opposite last page.)

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- 100% AUTOMATIC
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Hotel Pittsburgher MOTEL

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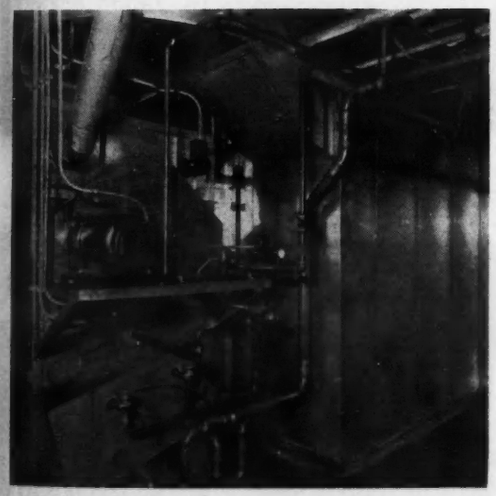
a Knott Hotel

JOSEPH F. DUDDY, GEN. MGR.

Automatic Smokehouse

(Continued from page 35)

Smoke generator and hardwood sawdust (right) along with air compressor and refrigeration unit are shown in plant of Chicago Smoked Fish Co.



Key to air-conditioned smokehouse is the refrigeration-heating unit (left) that keeps the temperature and relative humidity at a predetermined level regardless of outside conditions. One side of stainless steel smokehouse is shown at right of photo

the operator needs only manipulate a series of push-pull switches to start and stop the equipment and set the desired temperature and humidity index on the recording controller.

(Air conditioned smokehouse system is a development of Drying Systems, Inc., Dept. FP, 1800 Foster Ave., Chicago 40, Ill. . . . or for more information check FP 3356 on handy form opposite last page.)

(Instrumentation for recording and controlling temperature and humidity is a product of The Powers Regulator Co., Dept. FP, 3501 Oakton St., Skokie, Ill. . . or for more information check FP 3357 on handy form opposite last page.)

Better, Cheaper Drying

with Taylor in control at New Mill Noodle and Macaroni Co.

CASE HARDENING, and resultant cracking or checking, is no problem for New Mill Noodle and Macaroni Co., Chicago, Illinois. Drying is much more reliable and no operator attention is required.

The secret is the use of a modern dryer, designed by the Glenn G. Hoskins Co., Libertyville, Ill., and an accurate wet and dry bulb temperature-humidity control system supplied by Taylor Instrument Companies. The Taylor system utilizes a FULSCOPE* Time Schedule Controller, which automatically controls both dry and wet bulb temperatures *with an accuracy within* ½° F. according to a pre-determined schedule. An "interrupter-timer" adjusts total length of the drying schedule from a minimum of 12 hours to an infinite time.

A time-schedule controller is desirable for batch drying operations, since it is necessary to start the drying with a low depression (high humidity), or small difference between dry and wet bulb readings. Drying then proceeds at stages determined by the instrument cam schedules, to the point where the depression is quite large, and drives the finished moisture of the product down to the required level of 10 to 11½%.

This system saves money for New Mill in two ways. **1.** It insures a uniformly dried product. **2.** It reduces operator attention time very considerably—for instance, a night crew is unnecessary.

Consult your Taylor Field Engineer for full details about this and other cost-cutting Taylor systems. Or write for information to Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

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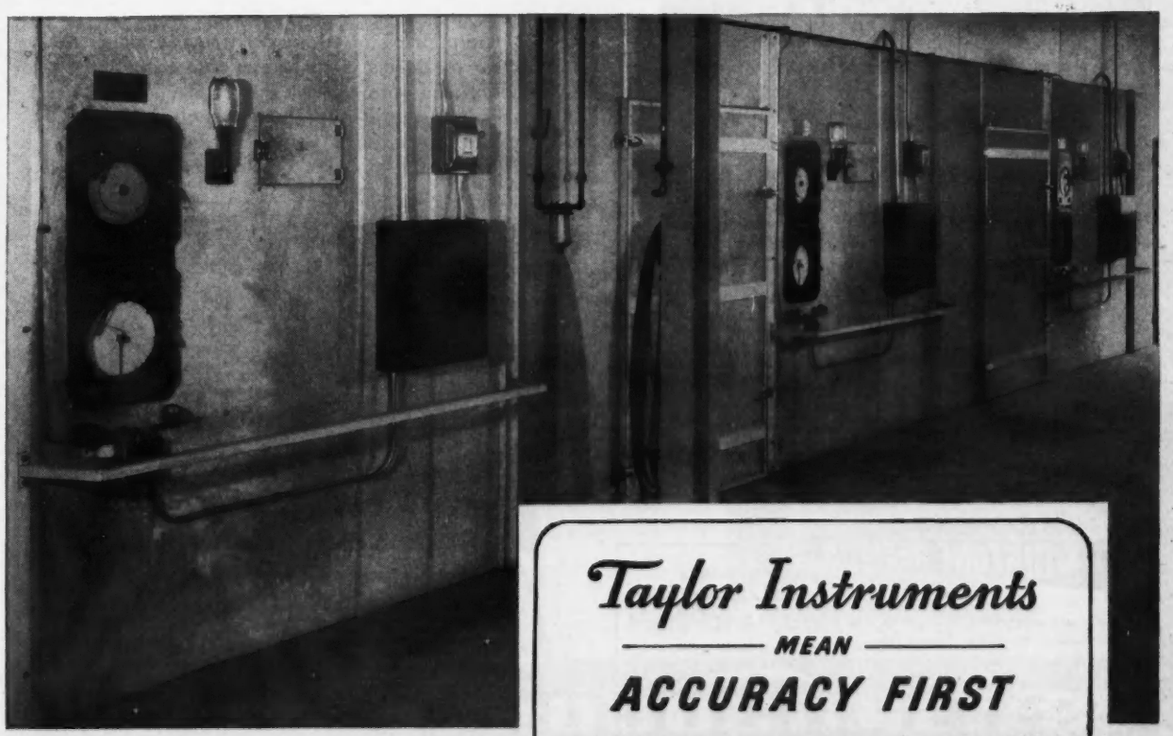

When inquiring check FP 3358 opposite last page

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We will want to test _____
in a moisture range from _____ % to _____ %.
Firm Name _____
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When inquiring check FP 3359 opposite last page

Refrigeration

(*Continued from page* 33)

troller that regulates the operation of the compressors and boosters in ½ stages according to the temperature of the return brine. System is designed to supply 100 tons of refrigeration and normally operated at minus 20°F.

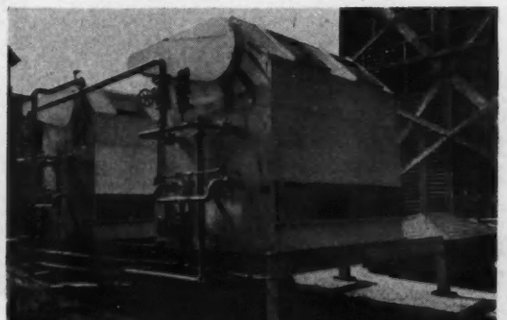
When return brine temperature is at minus 20°F, neither of the two compressor-booster systems is in operation.

Operation capacity of compressor-booster team

Brine temperature	No. 1	No. 2
– 20°	0	0
– 19°	½	0
– 18°	Full	0
– 17°	Full	½
– 16°	Full	Full

Should the brine temperature increase to minus 19°, one set automatically starts and runs at half capacity; at minus 18° one set operates at full capacity; at minus 17° one pair at full capacity, the other at half capacity. At minus 16° both pairs of compressor-boosters operate at full capacity.

To determine compressor operation at a glance, all necessary controls, with various colored lights, are incorporated onto a stainless steel panel board. An amber light means a compressor is operating at ½ capacity; green, full capacity; red, indicates danger (either a high pressure cutout or an oil failure switch has cut out showing that there is trouble). Selector switches for compressors, brine pumps, and condensing water pumps are also on this board. Green lights indicate which of the pumps are in operation.



Evaporative condensers are installed on roof of cold storage warehouse

In center of control panel is a double throw switch, with pistol-grip, which can be turned so that either of the two compressor-booster systems

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MERCURY SWITCH EQUIPPED

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○ FOR PRESSURE ○
○ TEMPERATURE ○
○ LIQUID LEVEL ○
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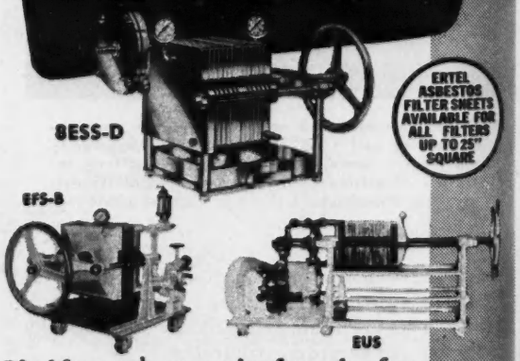

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ERTEL ENGINEERING CORPORATION
S. FRONT ST. KINGSTON, N. Y.
Branch Office & Showroom Located in New York City
COMPLETE LINE OF *Liquid Handling Equipment*

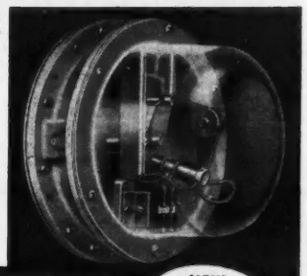
When inquiring check FP 3361 opposite last page

BIN-FLO AERATING UNIT

Provides Steady Flow of Dry, Finely Ground Materials which tend to bridge in storage. Uses only small amount low-pressure air.

BIN-DICATOR BIN LEVEL INDICATOR

For All Bulk Materials



signals change in level; automatically starts and stops filling and emptying equipment.

THE BIN-DICATOR CO.
13946-C Kercheval • Detroit 15, Mich.

NEW DETAIL DATA BOOK FREE

When inquiring check FP 3362 opposite last page

Block out old stenciling with

Stencil-Kover

Permits boxes, crates, cartons, drums to be re-stenciled and used again

• Tan-colored material in handy, efficient aerosol container completely covers over everything including old stenciling, crayon marks, printing, labels, etc. Dries quickly. Permits any container to be re-stenciled within 90 seconds and used again.

Always ready to use. No cans to open. No stirring. No brushes to clean. No waste. No drying out. No evaporation. A demonstration will convince you.

Ask us also about our quick drying waterproof Stencil Ink. Handy aerosol dispenser eliminates the muss and waste of fountain brushes and ball pots. 7 Colors.

REYNOLDS INK, Inc.
4514 EUCLID AVENUE, CLEVELAND 3, OHIO
Tell us more about your Stencil-Kover and Stencil Ink
☐ Send literature ☐ Ask your dealer to demonstrate
Name ..... Title .....
Company .....
Address .....

When inquiring check FP 3363 opposite last page

can be started first. This switch is reversed once a week in order to maintain equal wear on compressor-booster sets.

Electrical interlocks are provided which (a) cut out control system and stop compressors should the brine pump fail, (b) shut down system should condensing pressure exceed 225 psi, and (c) operate an audible alarm whenever the liquid level in the brine cooler rises too high, thus protecting the system against floodovers to the compressors.

In case of power failure, ammonia circulation is stopped by means of solenoid valves. When the power is turned on again, time relays regulate start-up of compressors so that there will not be too heavy a load all at once.

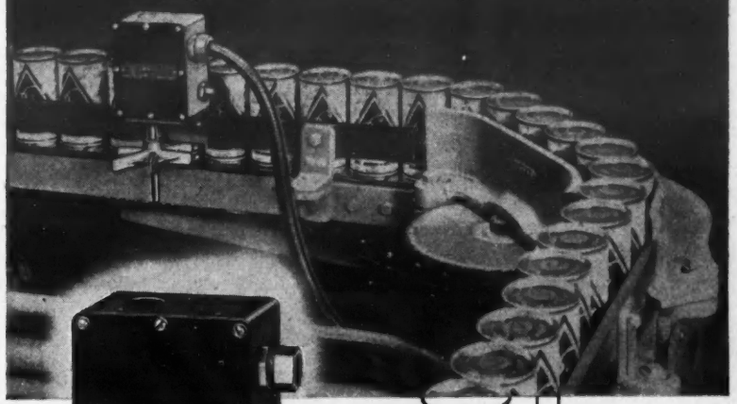
Results: One man, working one shift can now operate system—no attention required over weekends. The 3 firemen and 3 engineers formerly required have been released to other duties within the company. Boilers have been removed and space converted to locker room for employes. Beatrice Foods has found new system uses less water and that electrical power is more economical than coal.

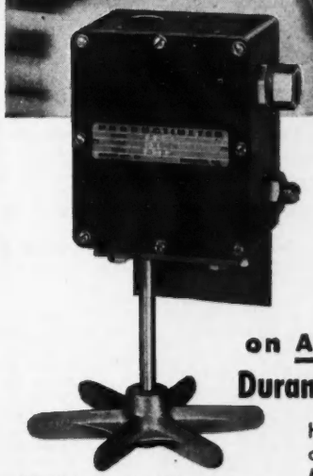
Temperatures no longer fluctuate greatly but remain constant within plus or minus 2°. Only ½ the former space is required for the new system—making the compressor room more attractive, easier to maintain, and more desirable to work in. System has paid for itself in less than 2 years.

(Automatic 100 ton refrigeration system was engineered and built by The Creamery Package Mfg. Company, Dept. FP, 1243 W. Washington Blvd., Chicago 7, Ill. . . . or for more information check FP 3364 on handy form opposite last page.)

(Instrumentation used in the system is a product of Foxboro Co., Dept. FP, Foxboro, Mass. . . . or for more information check FP 3365 on handy Reader Service slip which is located opposite last page.)

canning? bottling? packaging?





Stop.. COSTLY OVERRUNS
Know... EXACT PRODUCTION
on ALL LINES and ALL TIMES with
Durant CONTACTORS and COUNTERS

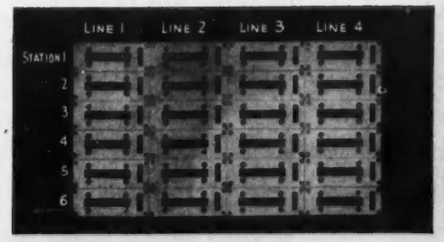
The life of the E-S-5-X Contactor and the 6-Y-1-MF electric counters is greatly increased, as the Contactor is gear-reduced to count ten cans or bottles for each contact . . . assuring ten times the life for both Contactor and Counter. The switch is entirely sealed against moisture, juices, and dirt.

Installation costs quickly paid for because of . . .

- **Lower Maintenance**
- **Saving in Reading Time**
- **Closer Production Control**
- **Minimum of Supervision**

These systems have been operating in various plants throughout the country for over two years without a breakdown or serious wear. One manufacturer has counted 104,445,684 cans; the accuracy was 100%. The same counter and switch are continuing today, giving accurate production count.

Here's the counting system designed specifically for can, bottle, and food lines. The Model E-S-5-X Contactor, mounted on the conveyor line, is the actuator for a centralized panel of 6-Y-1-MF electric counters. Production for all points within the plant can be determined with a glance at the panel. With this counting system, plants achieve better supervisory and production control . . . save hours over checking individual counters. Maintenance is at a minimum. The waterproof Contactor is unaffected by washdown operations while the counter panel is usually installed in a clean, dry location. Production count tampering by unauthorized personnel is also eliminated.



Send for Bulletin E-S-5-X

DURANT MANUFACTURING CO.
1951 N. Buffum St., Milwaukee 1, Wis. • 151 S. Water St., Providence 3, R.I.
Representatives in Principal Cities

PRODUCTIMETERS SINCE 1879 *Count Everything*

When inquiring check FP 3366 opposite last page

1955 BUYERS GUIDE for Indicators, Recorders, and Controllers

INSTRUMENTATION

All known suppliers of indicators, recorders, and controllers were contacted to ascertain if their products are used in the food industry. From the replies, the following Directory has been prepared. Complete addresses of these suppliers are found on page 44.

This 1955 Buyers Guide is the first edition. It is therefore to be expected that some omissions have occurred, even though we have tried to make it as complete as possible. Your calling these omissions to our attention will be appreciated. In this way, you will help us make the next one more complete.

In this Directory, after each listing, will be found letters I, R, and/or C indicating suppliers of Indicators, Recorders, and/or Controllers, respectively.

The Editors

I — Indicators; R — Recorders; C — Controllers

See page 44 for Suppliers' Addresses

COLOR
- American Optical Co., Instrument Div. (I, R)
- Bausch & Lomb Optical Co. (I)
- Beckman Instruments, Inc. (I)
- Central Scientific Co. (I)
- Coleman Instruments, Inc. (I)
- Electronic Control Corp. (I, C)
- Fisher Scientific Co. (I)
- General Electric Co. (R)
- Hallikainen Instruments (I, R, C)
- Instrument Development Labs, Inc. (I, C)
- Jerguson Gage & Valve Co. (I)
- Macbeth Corp. (I, R, C)
- Magnuson Engineers (I, R, C)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Proportioneers, Inc. (C)

CONCENTRATION OF COMPONENTS
- American Optical Co., Instrument Div. (I)
- Baird Associates (I, R)
- Arnold O. Beckman, Inc. (I, R, C)
- Beckman Instruments, Inc. (I)
- Brookfield Engineering Labs (I, R, C)
- Central Scientific Co. (I)
- Coleman Instruments, Inc. (I)
- Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
- Fischer & Porter Co. (I, R, C)
- Magnetrol, Inc. (C)
- Ohmart Corp. (I, R, C)
- Precision Thermometer & Instrument Co. (I, R, C)
- Proportioneers, Inc. (C)

CONSISTENCY *(see fluidity, plasticity, viscosity)*
- Bailey Meter Co. (R)
- Bristol Co. (I, R, C)
- Brookfield Engineering Labs (I, R, C)
- Central Scientific Co. (I)
- Electronic Control Corp. (I, C)
- Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
- Fischer & Porter Co. (I, R, C)
- Fisher Scientific Co. (I)
- Foxboro Co. (I, R, C)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Ohmart Corp. (I, R, C)
- Proportioneers, Inc. (C)
- Taylor Instrument Companies (I, R, C)

DENSITY *(see specific gravity)*
- Accuracy Scientific Instrument Co., Inc. (I)
- Automatic Temperature Control Co. (I, R, C)
- Baird Associates, Inc. (I)
- Bristol Co. (I, R, C)
- Brooks Rotameter Co. (I)
- Electronic Control Corp. (I, C)
- Fischer & Porter Co. (I, R, C)
- Fisher Scientific Co. (I)
- Foxboro Co. (I, R, C)
- Liquidepth Indicators, Inc. (I)
- Manning, Maxwell & Moore, Inc. (I, R, C)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Moeller Instrument Co. (I, R, C)
- Moore Products Co. (I, R, C)
- Ohmart Corp. (I, R, C)
- Penn Instruments Div., Burgess-Manning Co. (I, R, C)
- Precision Thermometer & Instrument Co. (I, R, C)
- Republic Flow Meters Co. (I)
- Taylor Instrument Companies (I, R, C)
- Uehling Instrument Co. (I)

DEW POINT
- Accuracy Scientific Instrument Co., Inc. (I)
- Bristol Co. (I, R, C)
- Foxboro Co. (I, R, C)
- General Electric Co. (I, R)
- G. M. Mfg. Co. (I)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Moeller Instrument Co. (I, R, C)
- Precision Thermometer & Instrument Co. (I)
- Taylor Instrument Companies (I, R, C)

EXPLOSIBILITY
- Bristol Co. (I, R, C)
- Clark Copper Co. (C)
- Foxboro Co. (I, R, C)

FLAMMABILITY
- Clark Copper Co. (C)
- Fisher Scientific Co. (I)
- Foxboro Co. (I, R, C)

FLOW RATE — VOLUME *(see weight)*
- Automatic Switch Co. (C)
- Barton Instrument Corp. (I, R, C)
- Bowser, Inc. (I)
- Bristol Co. (I, R, C)
- Brooks Rotameter Co. (I, R, C)
- Buffalo Meter Co. (I, R, C)
- Builders-Providence, Inc. (I, R, C)
- Eagle Signal Corp. (C)
- Engineering Sales & Service Co. (C)
- Fisher Scientific Co. (I)
- Foxboro Co. (I, R, C)
- General Regulator Corp. (C)
- Gilmore Industries, Inc. (I, R, C)
- G. M. Mfg. Co. (C)
- Hagan Corp. (I, R, C)
- Haledy Electronics Co. (C)
- Henszey Co. (I, R)
- W. A. Kates Co. (C)
- Magnetrol, Inc. (C)
- Manning, Maxwell & Moore, Inc. (I, R, C)
- Mason-Neilan Regulator Co. (I, R, C)
- Meriam Instrument Co. (I)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Moore Products Co. (I, R, C)
- Neptune Meter Co. (I, R, C)
- Omega Machine Co. (C)
- Penn Instruments Div., Burgess-Manning Co. (I, R, C)
- Potter Aeronautical Co. (I, R, C)
- Proportioneers, Inc. (C)
- Research Controls (C)
- Schutte & Koerting Co. (I, R, C)
- Simplex Valve & Meter Co. (I, R, C)
- Taylor Instrument Companies (I, R, C)
- Uehling Instrument Co. (I)
- U. S. Gauge Div., American Machine & Metals (I)
- Waukee Engineering Co. (I)

FLOW RATE — WT. MASS *(see weight)*
- Automatic Switch Co. (C)
- Bailey Meter Co. (I, R, C)
- Bristol Co. (I, R, C)
- Brooks Rotameter Co. (I, R, C)
- Control Engineering Corp. (I, R, C)
- Fischer & Porter Co. (I, R, C)
- Hagan Corp. (I, R, C)
- Henzey Co. (I, R)
- King Engineering Corp. (I)
- Meriam Instrument Co. (I)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Omega Machine Co. (C)
- Penn Instruments Div., Burgess-Manning Co. (I, R, C)
- Potter Aeronautical Co. (I, R, C)

FLUIDITY *(see consistency, plasticity, viscosity)*
- Automatic Switch Co. (C)
- Brookfield Engineering Labs (I, R, C)
- Electronic Control Corp. (I, C)
- Fischer & Porter Co. (I, R, C)
- Foxboro Co. (I, R, C)
- Keckley Mfg. Co. (C)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Schutte & Koerting Co. (I)
- Taylor Instrument Companies (I, R, C)

HUMIDITY — ABSOLUTE
- Foxboro Co. (I, R, C)
- Fulton Sylphon Div., Robertshaw Fulton Controls Co. (C)
- Moeller Instrument Co. (I, R, C)
- Powers Regulator Co. (C)

HUMIDITY — RELATIVE
- Bristol Co. (I, R, C)
- Cambridge Instrument Co., Inc. (I)
- Century Instrument Co. (I, R, C)
- Foxboro Co. (I, R, C)
- G. M. Mfg. Co. (I)
- Gotham Instruments Div., American Machine & Metals (R, C)
- Hallikainen Instruments (C)
- Johnson Service Co. (I, R, C)
- Mason-Neilan Regulator Co. (R, C)
- Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
- Palmer Thermometers, Inc. (I, R)
- Powers Regulator Co. (R, C)
- Taylor Instrument Companies (I, R, C)
- U. S. Gauge Div., American Machine & Metals (R, C)
- Weksler Thermometer Corp. (I, R)
- Weston Electrical Instrument Corp. (I, R, C)

HYDROGEN-ION CONCENTRATION *(see pH)*
- Foxboro Co. (I, R, C)

LEVEL — LIQUID
- Allow Bellows Engineering Co. (C)
- American Chain & Cable Co., Helicoid Gage Div. (I)
- Automatic Control Co. (C)
- Automatic Switch Co. (C)
- Automatic Temperature Control Co. (I, R, C)
- Bailey Meter Co. (I, R, C)
- Barton Instrument Corp. (I, R, C)
- Bin-Dicator Co. (I)
- Black, Sivalls & Bryson, Inc. (I, C)
- Bowser, Inc. (I)
- Bristol Co. (I, R, C)
- Builders-Providence, Inc. (I, R, C)
- B/W Controller Corp. (I, C)
- Clark Copper Co. (C)
- Electronic Control Corp. (I, C)
- Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
- Fischer & Porter Co., (I, R, C)
- Foxboro Co. (I, R, C)
- General Controls Co. (I, R, C)
- General Electric Co. (I)
- Gilmore Industries, Inc. (I, R, C)
- Hagan Corp. (I, R, C)
- Haledy Electronics Co. (I, C)
- Healy-Ruff Co. (I, C)

Jerguson Gage & Valve Co. (I)
Keckley Mfg. Co. (C)
King Engineering Corp. (I)
Leslie Co. (C)
Liquidepth Indicators, Inc. (I, C)
Liquidometer Corp. (I, R, C)
Magnetrol, Inc. (C)
Manning, Maxwell & Moore, Inc. (I, R, C)
Mason-Neilan Regulator Co. (I, R, C)
Meriam Instrument Co. (I)
Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
Moore Products Co. (I, R, C)
Ohmart Corp. (I, R, C)
Penn Instruments Div., Burgess-Manning Co. (I, R, C)
Proportioneers, Inc. (C)
Republic Flow Meters Co. (I, R, C)
Research Control (C)
Rochester Mfg. Co., Inc. (I)
Shand & Jurs Co. (I)
Simplex Valve & Meter Co. (I, R, C)
Stewart-Warner Co. (I)
Taylor Instrument Companies (I, R, C)
Uehling Instrument Co. (I, C)
Vapor Recovery Systems Co. (I, C)

LEVEL — SOLID
Allow Bellows Engineering Co. (C)
Bin-Dicator Co. (I)
Clark Copper Co. (C)
Electronic Control Corp. (I, C)
Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
Ohmart Corp. (I, R, C)
Taylor Instrument Companies (I, R, C)

OPACITY
Bausch & Lomb Optical Co. (I)
Electronic Control Corp. (I, C)
Fisher Scientific Co. (I)

pH
Analytical Measurements (I)
Bailey Meter Co. (I, R, C)
Beckman Instruments, Inc. (I)
Bristol Co. (I, R, C)
Cambridge Instrument Co., Inc. (I, R)
Central Scientific Co. (I)
Coleman Instruments, Inc. (I)
Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
Fisher Scientific Co. (I)
Foxboro Co. (I, R, C)
Macbeth Corp. (I, R)
Minneapolis Honeywell Regulator Co. Industrial Div. (I, R, C)
Research Controls (C)
Weston Electrical Instrument Corp. (R)

PLASTICITY *(see consistency, fluidity, viscosity)*
Bristol Co. (I, R, C)
Brookfield Engineering Labs (I, R, C)
Electronic Control Corp. (I, C)
Foxboro Co. (I, R, C)
Minneapolis Honeywell Regulator Co., Industrial Div. (I, R, C)
Taylor Instrument Companies (I, R, C)

PRESSURE *(see vacuum)*
Allow Bellows Engineering Co. (C)
American Chain & Cable Co., Helicoid Gage Div. (I)
Automatic Control Co. (C)
Automatic Switch Co. (C)
Automatic Temperature Control Co. (I, R, C)
Bailey Meter Co. (I, R, C.)
Black, Sivalls & Bryson, Inc. (I, C)
Bristol Co. (I, R, C)
Builders-Providence, Inc. (I, R, C)
A. W. Cash Valve Mfg. Co. (C)
Century Instrument Co. (I, R, C)
Clark Copper Co. (C)
Control Engineering Corp. (I, R)
Electric Auto-Lite Co., Instrument & Gauge Div. (R)
Electrimatic Div., J. P. Marsh Corp. (I)
Emmett Machine & Mfg. Co. (C)
Engineering Sales & Service Co. (C)
Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)
Fischer & Porter Co. (I, R, C)
Fisher Scientific Co. (I)
Foxboro Co. (I, R, C)
Fulton Sylphon Div., Robertshaw Fulton Controls (C)
General Controls Co. (I, R, C)
General Electric Co. (I, R, C)
General Regulator Corp. (C)
Gilmore Industries, Inc. (I, R, C)

I — Indicators; R — Recorders; C — Controllers

See page 44 for Suppliers' Addresses

(Continued on next page)

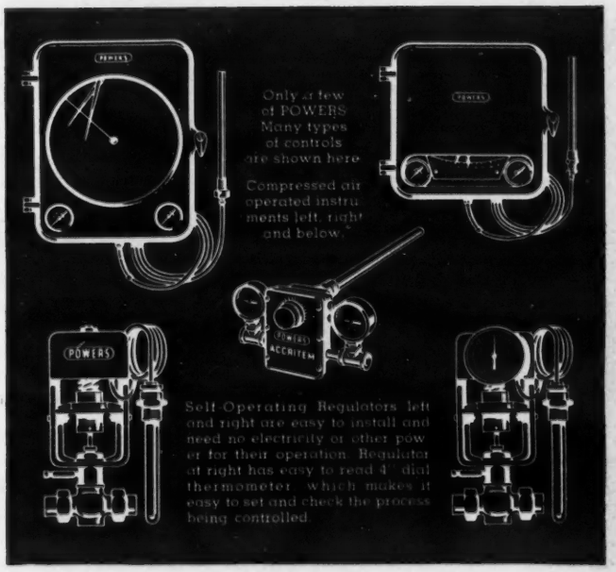
Cut Costs
... increase profits with POWERS

Automatic
TEMPERATURE
and Humidity Control

FLOWRITE
One of Powers Premium Quality Diaphragm Control Valves. They're simple, sturdy and dependable.

(c3)

VALVES: Available in a variety of body types and inner valves.


Only a few of POWERS Many types of controls are shown here
Compressed air operated instruments left, right and below.
Self-Operating Regulators left and right are easy to install and need no electricity or other power for their operation. Regulator at right has easy to read 4" dial thermometer which makes it easy to set and check the process being controlled.

Improved Product Quality quickly pays back a big return on the investment in Powers Control

By eliminating the wastefulness of human errors with the dependable accuracy of Powers automatic control you eliminate losses caused by OVER-heating or Under-heating.

You will get better control if you use the right type temperature controller and proper size control valve for your requirements. An experienced Powers engineer will gladly help you.

Call Your Nearest Powers Office or Write us direct

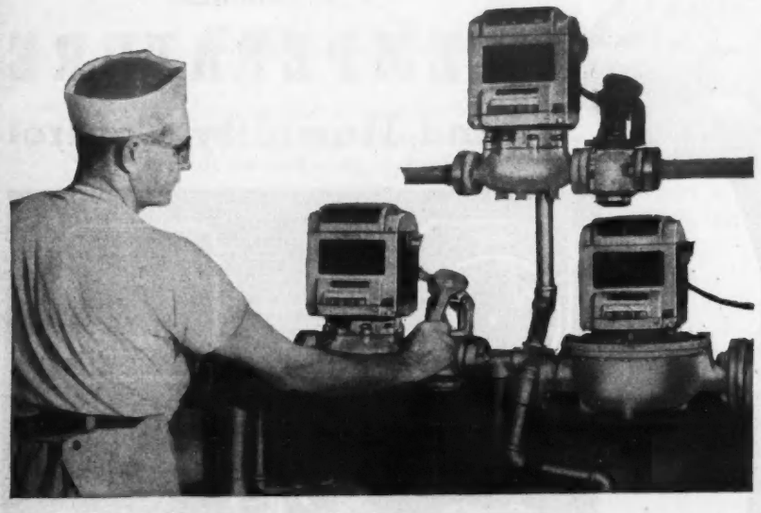
THE POWERS REGULATOR CO.

Skokie, Ill. • Offices in Chief Cities in U.S.A.
Canada and Mexico • See your phone book

OVER 60 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

When inquiring check FP 3367 opposite last page

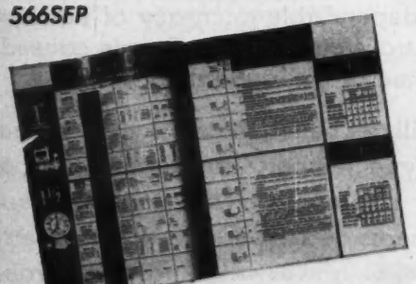
Three Neptune Meters Boost Production 200%



Less than half a minute of a man's time is required to measure three ingredients . . . corn syrup, liquid sugar, and water . . . into each batch of Nalley's table syrup. The operator simply pushes buttons on the Neptune Auto-Stop meters to set the pounds required by the formula, and opens the valves. The Auto-Stops shut off automatically . . . accurately . . . leaving the operator free to devote full attention to other details.

One man now produces more than three times as much as formerly was produced by five men handling bulk sugar and barreled corn syrup.

Ask for helpful Meter Selection Book 566SFP



This Auto-Stop batching meter is only one of many models and sizes of Neptune meters . . . ranging from meters with simple counters to electric switch adaptations and remote control systems . . . now handling more than 150 different industrial liquids. Sizes from 25 to 1000 gpm. Bronze construction. Telephone or write nearest branch for full details.

NEPTUNE METER COMPANY
19 West 50th Street, New York 20, N. Y.

Branches in:
ATLANTA • BOSTON • CHICAGO • DALLAS • DENVER
NO. KANSAS CITY, MO. • LOS ANGELES • LOUISVILLE
PORTLAND, ORE. • SAN FRANCISCO

In Canada: NEPTUNE METERS LTD., TORONTO 14, ONTARIO

neptune Liquid METERS

When inquiring check FP 3368 opposite last page

Buyers Guide

(Continued from preceding page)

Gotham Instruments Div., American Machine & Metals, Inc. (I, R, C)
Hagan Corp. (I, R, C)
Hallikainen Instruments (C)
Johnson Service Co. (I, R, C)
Jordan Corp. (C)
Keckley Mfg. Co. (C)
Leslie Co. (C)
Manning, Maxwell & Moore, Inc. (I, R, C)
Mason-Neilan Regulator Co. (R, C)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Moeller Instrument Co. (I, R, C)
Moore Products Co. (I, R, C)
Palmer Thermometers, Inc. (I, R)
Penn Instruments Div., Burgess-Manning Co. (I, R, C)
Powers Regulator Co. (I, R, C)
Precision Thermometer & Instrument Co. (I, C)
Republic Flow Meters Co. (R)
Research Controls (C)
Rochester Mfg Co. Inc. (I)
Arthur C. Ruge Associates, Inc. (I)
Ryan Recording Thermometer Co. (R)
Shand & Jurs Co. (I)
Stewart-Warner Co. (I)
Taylor Instrument Companies (I, R, C)
U. S. Gauge Div., American Machine & Metals, Inc. (I, R, C)
Vapor Recovery Systems Co. (I)
Weksler Thermometer Corp. (I, R, C)
West Instrument Corp. (I, R, C)
Weston Electrical Instrument Corp. (I, R, C)

REFRACTIVE INDEX
American Optical Co., Instrument Div. (I)
Baird Associates (I)
Bausch & Lomb Optical Co. (I, R, C)
Electronic Control Corp. (I)
Fisher Scientific Co. (I)
Goldberg Instruments, Ltd. (I)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)

SPECIFIC GRAVITY *(see density)*
Accuracy Scientific Instrument Co., Inc. (I)
Automatic Temperature Control Co. (I, R, C)
Arnold O. Beckman, Inc. (I, R, C — for gases)
Black, Sivalls & Bryson, Inc. (C)
Bristol Co. (I R, C)
Brooks Rotameter Co. (I)
Fischer & Porter Co. (I, R, C)
Fisher Scientific Co. (I)
Foxboro Co. (I, R, C)
G. M. Mfg. Co. (I)
Liquidepth Indicators, Inc. (I)
Manning, Maxwell & Moore, Inc. (I, R, C)
Minneapolis Honeywell Reg. Co. Ind. Div. (I, R, C)
Moeller Instrument Co. (I, R, C)
Moore Products Co. (I, R, C)
Ohmart Corp. (I, R, C)
Penn Instruments Div Burgess-Manning Co. (I, R, C)
Precision Thermometer & Instrument Co. (I, R, C)
Schutte & Koerting Co. (I)
Taylor Instrument Companies (I, R, C)
Uehling Instrument Co. (I)

SPEED
Bailey Meter Co. (I, R, C)
Bristol Co. (I, R, C)
Control Engineering Co. (I, C)
Engineering Sales & Service Co. (C)
Fielden Inst. Div., Robertshaw Fulton Controls (I, R, C)
Foxboro Co. (I, R, C)
General Electric Co. (I, R, C)
Gilmore Industries, Inc. (I, R, C)
Manning, Maxwell & Moore, Inc. (I, R, C)
Minneapolis Honeywell Reg. Co. Ind. Div. (I, R, C)
Potter Aeronautical Co. (I, R, C)
Stewart-Warner Co. (I)
Taylor Instrument Companies (I, R, C)
Weston Electrical Instrument Corp. (I)

TEMPERATURE
Accuracy Scientific Instrument Co., Inc. (I)
Allegany Instrument Co. (I, R, C)
Allow Bellows Engineering Co. (C)
Bailey Meter Co. (I, R, C)
Barber-Colman Co., Wheelco Inst. Div. (I, R, C)
Bristol Co. (I, R, C)
Builders-Providence, Inc. (I, R)
Burling Instrument Co. (C)
Century Instrument Co. (I, R, C)
Clark Copper Co. (C)
Control Engineering Corp. (I, R)
Electric Auto-Lite Co., Instrument & Gauge Div. (I, R)
Electrimatic Div., J. P. Marsh Corp. (I)
Emmett Machine & Mfg. Co. (C)
Farris-Stacon Corp. (C)
Fielden Instrument Div., Robertshaw Fulton Controls Co. (I, R, C)

I — Indicators; R — Recorders; C — Controllers

See page 44 for Suppliers Addresses

alphabetical index on page 105

. . . for alphabetical index of all processes, materials, services, and equipment discussed in this issue's editorial columns and advertisements, turn to page 105. "Quick-locator" starting on that page was a feature in FOOD PROCESSING years ago. It means extra work for the Editors, but it helps you, the reader, in finding what you want . . . in a hurry!

Buyers Guide

Fischer & Porter Co. (I, R, C)
Foxboro Co. (I, R, C)
Fulton Sylphon Div., Robertshaw Fulton Cont., Co. (C)
General Controls Co. (I, R, C)
General Electric Co. (I, R, C)
General Regulator Corp. (C)
Gilmore Industries, Inc. (I, R, C)
Gotham Inst. Div., American Mach. & Mtls., (I, R, C)
Hagan Corp. (I, R, C)
Healy-Ruff Co. (C)
Johnson Service Co. (I, R, C)
Jordan Corp. (C)
Keckley Mfg. Co. (C)
King Engineering Corp. (I)
Lammert & Mann Co. (I, R, C)
Leslie Co. (C)
Manning, Maxwell & Moore, Inc. (I, R, C)
Mason-Neilan Regulator Co. (R, C)
Meriam Instrument Co. (I)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Moeller Instrument Co. (I, R, C)
Moore Products Co. (I, R, C)
Norden-Ketay Corp. (I)
Penn Instruments Div., Burgess-Manning Co. (I, R, C)
Powers Regulator Co. (R, C)
Precision Thermometer & Instrument Co. (I)
Republic Flow Meters Co. (I, R)
Research Controls (C)
Rochester Mfg. Co., Inc. (I)
Stewart-Warner Co. (I)
Taylor Instrument Companies (I, R, C)
Uehling Instrument Co. (I)
U. S. Gauge Div., American Mach. & Mtls., (I, R, C,)
Vapor Recovery Systems Co. (I, C)
Weksler Thermometer Corp. (I, R, C)
Weston Electrical Instrument Corp. (I, R, C)

THICKNESS

Automatic Temperature Control Co. (I, R, C)
Bristol Co. (I, R, C)
Electronic Control Corp. (I)
Fielden Inst. Div., Robertshaw-Fulton Cont. Co. (C)
Foxboro Co. (I, R, C)
General Electric Co. (I, R, C)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Ohmart Corp. (I, R, C)
Taylor Instrument Companies (I, R, C)

TIME

Allegany Instrument Co. (I, R, C)
Automatic Temperature Control Co. (C)
Barber-Colman Co., Wheelco Instrument Div. (R, C)
Black, Sivalls & Bryson, Inc. (C)
Bristol Co. (I, R, C)
Control Engineering Co. (C)
Eagle Signal Corp. (C)
Electronic Control Corp. (I, C)
Emmett Machine & Mfg. Co. (C)
Engineering Sales & Service Co. (C)
Foxboro Co. (I, R, C)
General Controls Co. (C)
General Electric Co. (I)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Simplex Time Recorder Co. (R)
Taylor Instrument Companies (I, R, C)
Tork Clock Co., Inc. (C)
Weston Electrical Instrument Corp. (C)

TURBIDITY

Bailey Meter Co. (R)
Coleman Instruments, Inc. (I)
Fisher Scientific Co. (I)
General Electric Co. (I, R, C)
Hallikainen Instruments (I, R, C)
Jerguson Gage & Valve Co. (I)
Magnuson Engineers (I, R, C)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)

VACUUM (see pressure)

Allow Bellows Engineering Co. (C)
American Chain & Cable Co., Helicoid Gage Div. (I,)
Automatic Switch Co. (C)
Automatic Temperature Control Co. (I, R, C)
Bailey Meter Co. (I, R, C)
Black, Sivalls & Bryson, Inc. (I, C)
Bristol Co. (I, R, C)
Builders-Providence, Inc. (I, R)
A. W. Cash Valve Mfg. Corp. (C)
Central Scientific Co. (I)
Clark Copper Co. (C)
Electric Auto-Lite Co., Instrument & Gauge Div. (R)
Electrimatic Div., J. P. Marsh Corp. (I)
Electronic Control Corp. (I, C)
Engineering Sales & Service Co. (C)
Fischer & Porter Co. (I, R, C)
Foxboro Co. (I, R, C)
Fulton Sylphon Div., Robertshaw-Fulton Cont. Co. (C)
General Controls Co. (I, R, C)

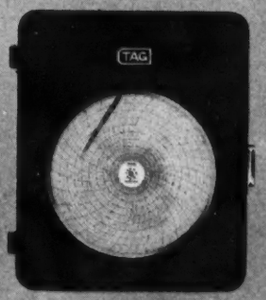
(*Continued on next page*)

to regulate and record—

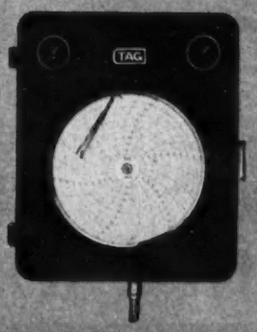
TEMPERATURE.. PRESSURE.. VACUUM..TIME

mechanical instruments by

WESTON



RECORDING INSTRUMENTS . . . in 9", 10" and 12" chart sizes — single and multipen — for all requirements.



RECORDING CONTROLLERS . . . handle temperatures from —325°F to 1000°F—vacuum to 30" mercury — pressures to 7500 psi or higher.

Just Published!

TIME CONTROLLERS . . . make any semiautomatic retort control system fully automatic. Available in both standard and special forms.

INDICATING CONTROLLERS . . . accurately regulate temperature, vacuum, pressure and indicate on direct-reading scale.

DIAL THERMOMETERS (remote reading) . . . furnished with mercury, gas, or vapor pressure actuations. Flush or wall mounting. Indicate low as —325°F., high as 1000°F.

Just published . . . the new catalog M2A which fully illustrates and describes the comprehensive line of WESTON mechanical instruments, noted for their long-time accuracy and dependability. Send for your copy today; or ask your local Weston representative for help on any measurement or control problem involving temperature, vacuum, pressure. Weston Electrical Instrument Corporation, 614 Frelinghuysen Ave., Newark 5, N. J., *a subsidiary of Daystrom Inc., 200 Elmora Ave., Elizabeth, N. J.*

WESTON *Instruments*

When inquiring check FP 3369 opposite last page

This model has 3-way adjustable mounting

for EYE LEVEL READINGS

AUTO-LITE

TEMPERATURE INDICATORS...

Auto-Lite Temperature Indicators are ideal for use in food processing and storage rooms, and for installation on various kinds of equipment where dependable temperature indication is desirable.

Model F-1 thermometer (illustrated) is available with maximum visibility dial; choice of temperature ranges from minus 60°F. to plus 750°F; flexible tubing for remote reading or rigid stem for direct mounting; 5½" dial. Adjustable electrical alarm contacts slightly higher. Priced from $22.

Send for new catalog describing Auto-Lite Temperature Recorders and Indicators for food processing applications.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK CHICAGO SARNIA, ONTARIO

When inquiring check FP 3370 opposite last page

Buyers Guide

(Continued from preceding page)

General Electric Co. (I)
Gotham Instruments Div., American Machine & Metals, Inc. (I, R, C)
Johnson Service Co. (I, R, C)
Jordan Co. (C)
King Engineering Corp. (I)
Lammert & Mann Co. (I, R, C)
Leslie Co. (C)
Manning, Maxwell & Moore, Inc. (I, R, C)
Marshalltown Mfg. Co. (I)
Mason-Neilan Regulator Co. (R, C)
Meriam Instrument Co. (I)
Minneapolis Honeywell Reg. Co. Ind. Div. (I, R, C)
Moeller Instrument Co. (I, R, C)
Moore Products Co. (I, R, C)
Norden-Ketay Corp. (I)
Penn Instruments Div., Burgess-Manning Co. (I, R, C)
Precision Thermometer & Instrument Co. (I)
Republic Flow Meters Co. (I, R)
Rochester Mfg. Co., Inc. (I)
Stewart-Warner Co. (I)
F. J. Stokes Machine Co. (I, R)
Taylor Instrument Companies (I, R, C)
Uehling Instrument Co. (I)
U. S. Gauge Div., American Mach. & Mtls., (I, R, C)
Weksler Thermometer Corp. (I, R, C)
Weston Electrical Instrument Corp. (I, R, C)

VISCOSITY *(see consistency, fluidity, plasticity)*
Automatic Switch Co. (C)
Bristol Co. (I, R, C)
Brookfield Engineering Labs (I, R, C)
Electronic Control Corp. (I, C)
Fischer & Porter Co. (I, R, C)
Fisher Scientific Co. (I)
Foxboro Co. (I, R, C)
General Electric Co. (I)
Hallikainen Instruments (I, R, C)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Norcross Corp. (R, C)
Proportioneers, Inc. (C)
Schutte & Koerting Co. (I)
Taylor Instrument Companies (I, R, C)

WEIGHT *(see flow rate)*
(Does not include packaging equipment)
Automatic Temperature Control Co. (I, R, C)
Bristol Co. (I, R, C)
Buffalo Scale Co. (I, R, C)
Builders-Providence, Inc. (I, R, C)
Central Scientific Co. (I)
A. H. Emery Corp. (I, R, C)
Fielden Inst. Div. Robertshaw Fulton Controls (I,R,C)
Foxboro Co. (I, R, C)
Gilmore Industries, Inc. (I, R, C)
Howe Scale Co. (I, R)
King Engineering Corp. (I)
Meriam Instrument Co. (I)
Minneapolis Honeywell Reg. Co., Ind. Div. (I, R, C)
Omega Machine Co. (R, C)
Taylor Instrument Companies (I, R, C)

I — Indicators; R — Recorders; C — Controllers

ADDRESSES

Complete addresses of suppliers listed in Buyers Guide

Accuracy Scientific Instrument Company, Inc.
2903 N. 12th Street, Philadelphia 33, Pa.
Allegany Instrument Company, Inc.
1000 Oldtown Rd., Cumberland, Maryland
Allow Bellows Engineering Company
18125 Roseland Road, Cleveland 12, Ohio
American Chain & Cable Co., Helicold Gage Div.
929 Connecticut Avenue, Bridgeport 2, Conn.
American Optical Company, Instrument Division
Box A, Buffalo 15, New York
Analytical Measurements
585 Main Street, Chatham, New Jersey
Automatic Control Company
1005 University Avenue, St. Paul 4, Minnesota
Automatic Switch Company
391 Lakeside Avenue, Orange, New Jersey
Automatic Temperature Control Company
5212 Pulaski Avenue, Philadelphia 44, Pa.
Bailey Meter Company
1050 Ivanhoe Road, Cleveland 10, Ohio
Baird Associates
33 University Road, Cambridge 38, Massachusetts
Barber-Colman Company, Wheelco Instruments Div.
1300 Rock Street, Rockford, Illinois
Barton Instrument Corporation
1429 S. Eastern Avenue, Los Angeles 22, Calif.
Bausch & Lomb Optical Co., Scientific Instr. Div.
615 St. Paul Street, Rochester 2, New York

You GET

GREATER PUMP EFFICIENCY with Royal Crown PUMP VALVES

MADSEN Equipment that Serves

Install them and forget them! Royal Crown Pump Valves are ball-guided, they oscillate and turn with the fluid stream. There is a minimum of resistance to the fluid as they swing freely with each stroke of the pump — seating perfectly, each time in a new position. Adaptable to all reciprocating pumps without mechanical change. Write for free literature.

SIMPLE CONSTRUCTION
No springs or complicated parts to get out of order ... means long, trouble-free service.

OUTSTANDING FEATURES OF THE ROYAL CROWN VALVE

- Designed for minimum weight and maximum buoyancy, it releases the flow instantly and seals the flow instantly.
- No springs required to force the valve to seat.
- No crossbars in seat to restrict the flow.
- Valve cannot bind in any position ... will not flutter.
- Ball valve and ball stem are machined with a common axis; valve and seat are ground separately and then lapped together.

Round valve surface is streamlined ... no obstructions to restrict the flow of liquid.

Ball-guided valve rotates and swings with each stroke of the pump. Each turn, each swing — a perfect seat.

The free vertical action assures instant opening and closing. The ball stem is a frictionless guide.

- Adaptable to all reciprocating pumps available in all suitable metals for press or screw fit.

BLH
MADSEN WORKS
CONSTRUCTION EQUIPMENT DIVISION
Baldwin-Lima-Hamilton Corporation
14120 EAST ROSECRANS AVENUE • P.O. BOX 38 • LA MIRADA, CALIF., U.S.A.

When inquiring check FP 3371 opposite last page

What's A "New Solution"?

It's an article in FOOD PROCESSING describing a new way of solving a tough plant operating problem. In each issue you will find specific "case histories" showing how these processing problems were solved. Each article states the operating problem . . . explains the process used and gives details of how problem was solved . . . shows results secured.

Take a look at "New Solutions" articles in this issue — they might suggest a "solution" for some of your tough processing problems.

Buyers Guide

Arnold O. Beckman, Inc.
1020 Mission Street, South Pasadena, Calif.

Beckman Instruments, Beckman Division
2500 Fullerton Road, Fullerton, Calif.

Bin-Dicator Company
13946 Kercheval, Detroit 15, Michigan

Black, Sivalls & Bryson, Inc.
7500 E. 12th Street, Kansas City, Missouri

Bowser, Inc.
1302 E. Creighton Avenue, Fort Wayne 2, Indiana

Bristol Company
Waterbury 20, Connecticut

Brookfield Engineering Laboratories
2 Porter Street, Stoughton, Massachusetts

Brooks Rotameter Company
P. O. Box 432, Lansdale, Pennsylvania

Buffalo Meter Company
2917 Main Street, Buffalo 14, New York

Buffalo Scale Company
46 Letchworth Street, Buffalo 13, New York

Builders-Providence, Inc.
345 Harris Avenue, Providence, Rhode Island

Burling Instrument Company
16 River Road, Chatham, New Jersey

B/W Controller Corporation
2200 E. Maple Road, Birmingham, Michigan

Cambridge Instrument Company, Inc.
3081 Grand Central Terminal, N. Y. 17, N. Y.

A. W. Cash Valve Mfg. Corporation
6614 E. Wabash, Decatur, Illinois

Central Scientific Company
1700 Irving Park Road, Chicago, Illinois

Century Instrument Company
565 E. Milwaukee, Detroit 2, Michigan

Clark Copper Company
Palmyra, New Jersey

Coleman Instrument, Inc.
318 Madison Street, Maywood, Illinois

Control Engineering Company
8900 Alpine, Detroit 4, Michigan

Control Engineering Corporation
560 Providence Highway, Norwood, Massachusetts

Eagle Signal Corporation
202 20th Street, Moline, Illinois

Electric Auto-Lite Company, Instrument & Gauge Div.
Toledo 1, Ohio

Electrimatic Div., J. P. Marsh Corporation
3501 Howard Street, Skokie, Illinois

Electronic Control Corporation
1573 E. Forest Avenue, Detroit 7, Michigan

A. H. Emery Company
Pine Street, New Canaan, Connecticut

Emmett Machine & Manufacturing Company
2249 Fourteenth Street, S. W., Akron 14, Ohio

Engineering Sales & Service Company
5493 Penn Avenue, Pittsburgh, Pennsylvania

Ferris-Stacon Corporation
343 Commercial Avenue, Palisades Park, N. J.

Fieldon Instrument Div., Robertsaw Fulton Cont. Co.
2900 N. 4th Street, Philadelphia 33, Pennsylvania

Fischer & Porter Company
775 Warminster Road, Hatboro, Pennsylvania

Fisher Scientific Company
711 Forbes Street, Pittsburgh 19, Pennsylvania

Foxboro Company
Foxboro, Massachusetts

Fulton Sylphon Div., Robertshaw Fulton Controls Co.
Knoxville 4, Tennessee

General Controls Company
801 Allen Avenue, Glendale 1, California

General Electric Company
1 River Road, Schenectady 5, New York

General Regulator Corporation
117 Liberty Street, New York, New York

Gilmore Industries, Inc.
5713 Euclid Avenue, Cleveland 3, Ohio

G. M. Manufacturing Company
50 W. 3rd Street, New York, New York

Gotham Instruments Div., American Mach. & Metals
233 Broadway, New York 7, New York

Hagan Corporation
Hagan Building, Pittsburgh 30, Pennsylvania

Halody Electronics Company
57 William Street, New York 5, New York

Hallikainen Instruments
1341 Seventh Street, Berkeley, California

Healy-Ruff Company, Water Level Controls Div.
2255 University Avenue, St. Paul 4, Minnesota

Hanxray Company
Watertown, Wisconsin

Howe Scale Company
Rutland, Vermont

Instrument Development Labs., Inc.
163 Highland Ave., Needham Heights 94, Mass.

Jerguson Gage & Valve Company
87 Fellsway, Somerville 45, Massachusetts

Johnson Service Company
507 E. Michigan Avenue, Milwaukee 2, Wisconsin

(*Continued on page 49*)

WHEN ACCURACY MEANS DOLLARS-AND-CENTS SAVINGS

...another highest-accuracy control instrument from the most complete line serving industry

DEPENDABLE QUALITY CONTROL • Index accuracy to .00003 . . . assures identification of samples whose indexes are very close together. Tests transparent or opaque samples, liquid or solid, by transmitted or reflected light. Three readily interchangeable prism assemblies cover range of 1.20 to 1.70. Wear-compensated parts assure year-after-year accuracy. Special test prism available for instrument check, certified by U.S. Bureau of Standards.

FAST, EASY READINGS • Built-on sodium vapor illuminator provides bright, sharp dividing line. Mercury light source also available for high accuracy dispersion readings. Long-focus telescope system makes it easy to match dividing line with crosshairs. Illuminated vernier and magnifying eyepiece provide quick reading of widely graduated scale. Inclination joint adjusts instrument to individual reading comfort.

NOW! PRECISE TEMPERATURE CONTROL INCREASES TEST ACCURACY • B&L Total Immersion Thermometer, ASTM-approved, reads accurately to ±.1°. Mounts in circulating system of B&L Precision Refractometer, protected from drafts and breakage. Magnifying eyepiece, built-in illuminator. (Optional)

WRITE TODAY FOR DATA AND DEMONSTRATION Informative Catalog D-202, and obligation-free demonstration, yours on request. Write to Bausch & Lomb Optical Co., 60645 St. Paul St., Rochester 2, New York.

BAUSCH & LOMB
SINCE B&L 1853

America's only complete optical source . . . from glass to finished product.

When inquiring check FP 3374 opposite last page

New portable laboratory offers fast, accurate water bacteria count

The new SABRO portable laboratory for bacteria analysis of water gives a safe, permanent, visible count of bacteria—in the laboratory or in the field. Analysis time is reduced by 33% over presently used techniques, and results are accurate. Using the membrane filter technique, this simple, time-saving method can be taught quickly to personnel unexperienced in laboratory technology.

The SABRO laboratory contains all equipment needed for water examination. Its shelves are incubators, and are magnetized to hold disposable incubation cans during transport. Operating on standard 110 volt AC power, or fitted to meet special power requirements, it is readily adaptable to emergency use or it can be used in spot checking potable water supplies.

Write today for catalog B-101 describing the SABRO portable laboratory for bacteriological analysis of water.

Hyla process

SALEM-BROSIUS, INC.

Dept. H-1 • CARNEGIE, PA.

When inquiring check FP 3375 opposite last page

SPARKLER FILTERS

SPARKLER horizontal plate FILTERS

HORIZONTAL PLATE

100% Sanitary For Food Products

Made in all stainless steel—valves and piping—with all surfaces completely cleanable to conform with sanitary requirements in the food field.

Are the plates in the filter you are now using as accessible for complete cleaning inside and out as the Sparkler horizontal plate shown here?

With most other types of filter plates the inner surfaces are inaccessible and cannot be cleaned; contaminating particles are locked in and the first run of a new batch frequently must be discarded or rerun through the filter.

With Sparkler sanitary plates, a pure product is obtained right from the start and continues pure with fine sharp filtration up to the end of the filtering cycle.

The patented Sparkler scavenger plate acts as an auxiliary filter with independent control valve filtering each batch down to almost the "last drop," leaving practically no unfiltered holdover in the bottom of the tank.

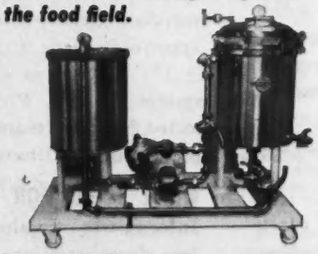
Available in capacities up to 10,000 G.P.H.

Write Mr. Eric Anderson for personal service

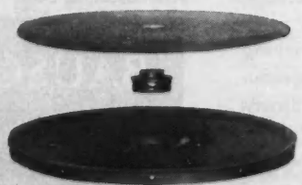
SPARKLER MANUFACTURING CO., Mundelein, Ill.

Sparkler International Ltd. Plants at Galt, Ontario, Canada and Amsterdam, Holland

Service representatives in principal cities

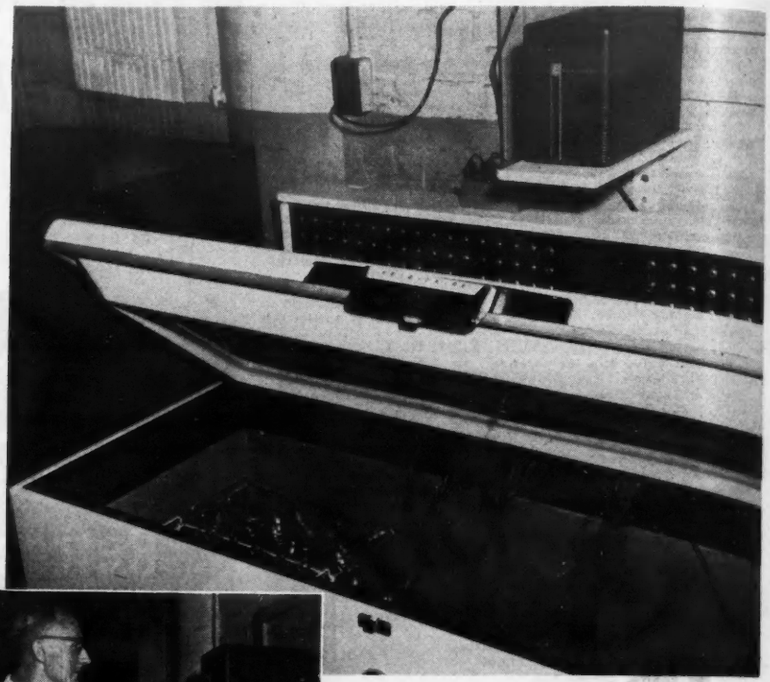


All stainless steel horizontal plate filter with stainless steel piping, valves, and slurry tank.



Sparkler plates can be completely disassembled for sanitary cleaning.

When inquiring check FP 3376 opposite last page



Baskets containing beverage samples in glass jars are placed in insulated box, and leads from electrodes connected to multi-point panel. Electrical potential produced is read on galvanometer at top

H. T. Johnson, research chemist at Continental Can, is shown reading from galvanometer

Continental Can's carbonated beverage research aided by 'corrosivity tester,' which

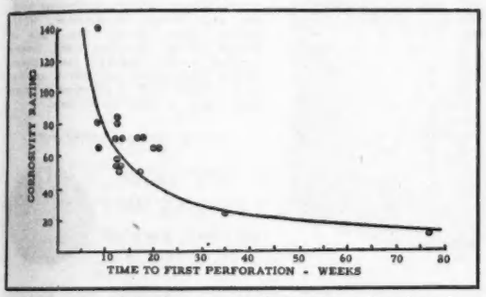
estimates shelf life of canned soft drinks

Variations in beverage formulations make it difficult to predict the shelf-life of carbonated beverages when packed in metal containers, without a thorough analysis of all factors involved. However, the "corrosivity tester," a new tool recently developed by Continental Can Company's Metal Division Laboratories in Chicago, permits Continental (a) to evaluate the corrosivity of soft drinks and their components; (b) to estimate the shelf-life of specific canned carbonated beverages, and (c) to design suitable metal containers for soft drinks which will protect the quality of the canned beverage product.

This unit provides a measure of the corrosivity of individual carbonated beverages. Using this tester, the factors contributing to the corrosivity of this class of beverage have been studied and, in many cases, their effect

reduced to a minimum in order to extend the shelf-life of the product.

The corrosion encountered in canned beverages is the galvanic type, in which two dissimilar metals (in this instance tin and iron) immersed in an electrolyte (the beverage) comprise a closed circuit, thus setting up an electrical potential within the can. Thus it is possible to establish a galvanic test system with tin and iron electrodes which, when immersed in a carbonated beverage under controlled conditions, will cause different amounts of current to flow between the tin and iron. The corrosivity tester measures the current produced by this type of system — which is actually a measure of the beverage corrosivity, since electrodes remain same and beverage is changed.



Perforation data from controlled test packs plotted against curve based on calculated perforation times

The tester itself consists of an insulated box, a multi-point connection panel, and a galvanometer. Samples are first placed in glass jars containing tin and iron electrodes. The jars are then placed in the insulated box (generally maintained at 76°F), and the leads from the electrodes are connected to the multi-point connection panel. The electrical current flowing across the electrodes of each sample is measured by and read on the galvanometer, which is modified to measure both positive and negative currents.

The data so collected can be correlated with shelf-life of the product, although the results provide only an indication of the shelf-life rather than positive values.

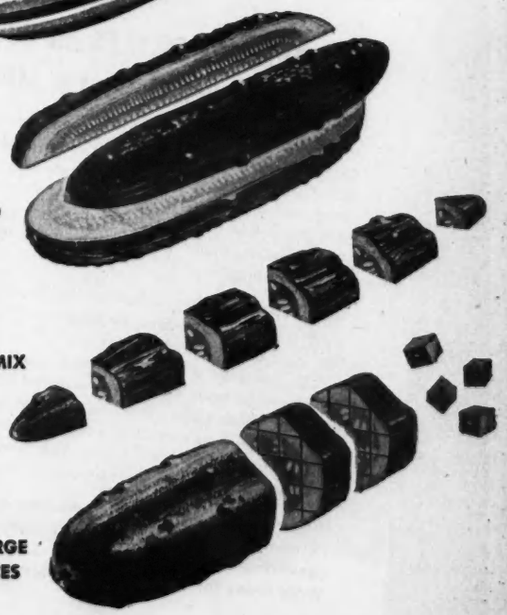
Using the corrosivity tester, various factors which contribute to beverage corrosivity have been discovered and investigated. In many cases, the effects of these factors have been minimized by modifications in formula or canning technique, thus extending the shelf-life of the canned product. For example, the food color amaranth was found to contribute to high corrosivity. Tolerance levels for this ingredient have been worked out in order to attain maximum shelf-life for the carbonated beverage.

Another important factor is air content of the

(*Continued on next page*)

PROFITABLE PICKLE CUTTING

Cutting pickles can be a simple, efficient and **profitable** operation when you use equipment **designed for the job.** Urschel specialized, high speed, dependable machines have made it possible for Pickle Packers everywhere to make more profit by getting uniform, quality pickle cuts in all the popular sizes and shapes. They fit perfectly into existing production lines and are flexibly designed to handle small or large capacity output with equal ease.



This new complete information brochure, "Profitable Pickle Cutting" is now available. You'll find it invaluable as a handy reference guide. Send for your copy today, without charge, without obligation.

at the "PICKLE FAIR", HOTEL SHERATON, Chicago, October 19-21, see all the LATEST Pickle Cutting Equipment at Urschel Booths 3-4

PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

URSCHEL LABORATORIES INC.
VALPARAISO, INDIANA

manufacturers of precision, high speed cutting equipment for delicate food products

When inquiring check FP 3377 opposite last page

80 BUSHELS OF PICKLES AN HOUR PROCESSED BY THIS SIMPLICITY 3′ x 8′ MODEL "C"

This Simplicity 3′ x 8′ pickle screen has greatly improved the quality of both large and small pickle slices for one of the largest pickle processors. It is removing end slices, half slices, very thin slices and broken slices from 80 bushels of pickles per hour, fed onto the screen from a Urschel slicer set for 1/10″ to 3/8″ slices. This leaves for hand picking only those unbroken slices with the centers missing.

The unique, gyrating action of the Simplicity Screen performs a more accurate separation by keeping the slices in constant agitation . . . on end and turning over. The width of the machine (a full 3 feet with a total screening area of 24 square feet) contributes to an even, thin bed of material for more complete removal of undesirable slices. The unit requires little supporting structure and may be mounted on a wooden frame. This is due to the lack of vibration in the main frame. The Simplicity patented Balanced Assembly concentrates the vibration on the entire screening surface.

Whether your food processing problem concerns pickles, vegetable dewatering or sizing, tomato processing, sewage screening, or conveying bulk materials . . . a Simplicity unit is your answer. Write today for more complete information.

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY, BURLAND, MICH.
SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A.
FOR CANADA: Trenton Machine Products, Limited, Trenton, Ontario
FOR EXPORT: Amsco-Simplicity Corp., 50 Church St., New York 7, N. Y.

When inquiring check FP 3378 opposite last page

quality control

(*Continued from preceding page*)

canned beverage. Continental data verify the general belief that elimination of air in the headspace is essential to obtain satisfactory shelf-life, since air content can be correlated with ability of the beverage to pick up iron, as shown by the corrosivity tester.

(From a paper given at 1955 annual meeting of Institute of Food Technologists, Columbus, Ohio.)

Medford's

(*Continued from page* 31)

Results: System provides excellent control of humidity in coolers. Carcasses are now dry to touch and appearance without appreciable shrink. Wall sweating and objectionable odors have been eliminated. Walls require painting much less frequently than they did before. Steam element installation is completely satisfactory and crossovers cause no water hammer, thumping, or surging.

(Humidity controller was supplied by Industrial Division, Minneapolis-Honeywell Regulator Corp., Dept. FP, 4421 Wayne St., Philadelphia 44, Pa. . . . or for more information check FP 3379 on handy form opposite last page.)

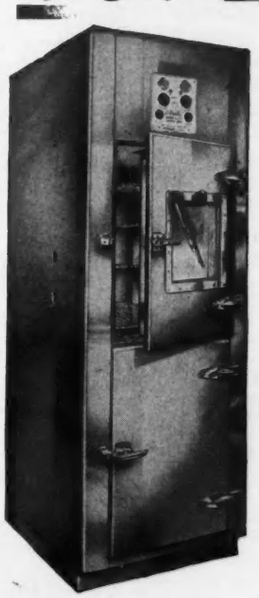
(Impulse steam traps were supplied by Yarnall-Waring Co., Dept. FP, 102 Mermaid Lane, Philadelphia 18, Pa. . . . or for more information check FP 3380 on handy form opposite last page.)

Antifoam emulsion properties described in brochure

Present applications, together with suggested concentrations, dispersing media, and methods of use are discussed in four-page brochure on antifoam emulsion. Other silicone products are also described.

Brochure "Silicone Defoamers" is available from Dow Corning Corp., Dept. FP, Midland, Mich. Specify FP 3381 opp. last page.

"Anets" LABORATORY
CABINET AUTOMATICALLY CONTROLS TEMPERATURE and HUMIDITY for TESTING of QUALITY CONTROL



Specified by leaders in the electric, electronic, radio, auto, chemical, food, paint, medical, pharmaceutical and research industries. RANGE STD. LSC-16. Room to 180°—Special LSC-16—0° to 300°F. Relative humidity up to 96%. Cooling equipment and time pattern controls to meet J.A.N. specifications are available. Various size ports to take testing leads can be supplied. Specify size and location.

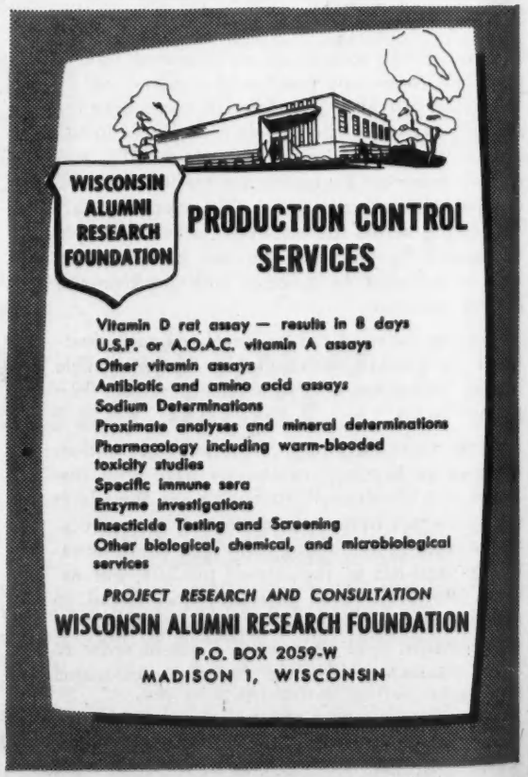
SPECIFICATIONS

Entire inner cabinet, ducts, air conditioner blower wheels, nichrome heating unit, steam generator, water feeder, door liners, etc., are of heavy gauge stainless steel. Heavy molded rubber gasket seals doors. Model illustrated has outer cabinet of stainless with inspection window and wiper at additional cost.

WRITE FOR BULLETIN 5170

ANETSBERGER BROTHERS, INC.
167 North Anets Dr.
Northbrook, Ill.

When inquiring check FP 3382 opposite last page


WISCONSIN ALUMNI RESEARCH FOUNDATION
PRODUCTION CONTROL SERVICES
Vitamin D rat assay — results in 8 days
U.S.P. or A.O.A.C. vitamin A assays
Other vitamin assays
Antibiotic and amino acid assays
Sodium Determinations
Proximate analyses and mineral determinations
Pharmacology including warm-blooded toxicity studies
Specific immune sera
Enzyme investigations
Insecticide Testing and Screening
Other biological, chemical, and microbiological services
PROJECT RESEARCH AND CONSULTATION
WISCONSIN ALUMNI RESEARCH FOUNDATION
P.O. BOX 2059-W
MADISON 1, WISCONSIN

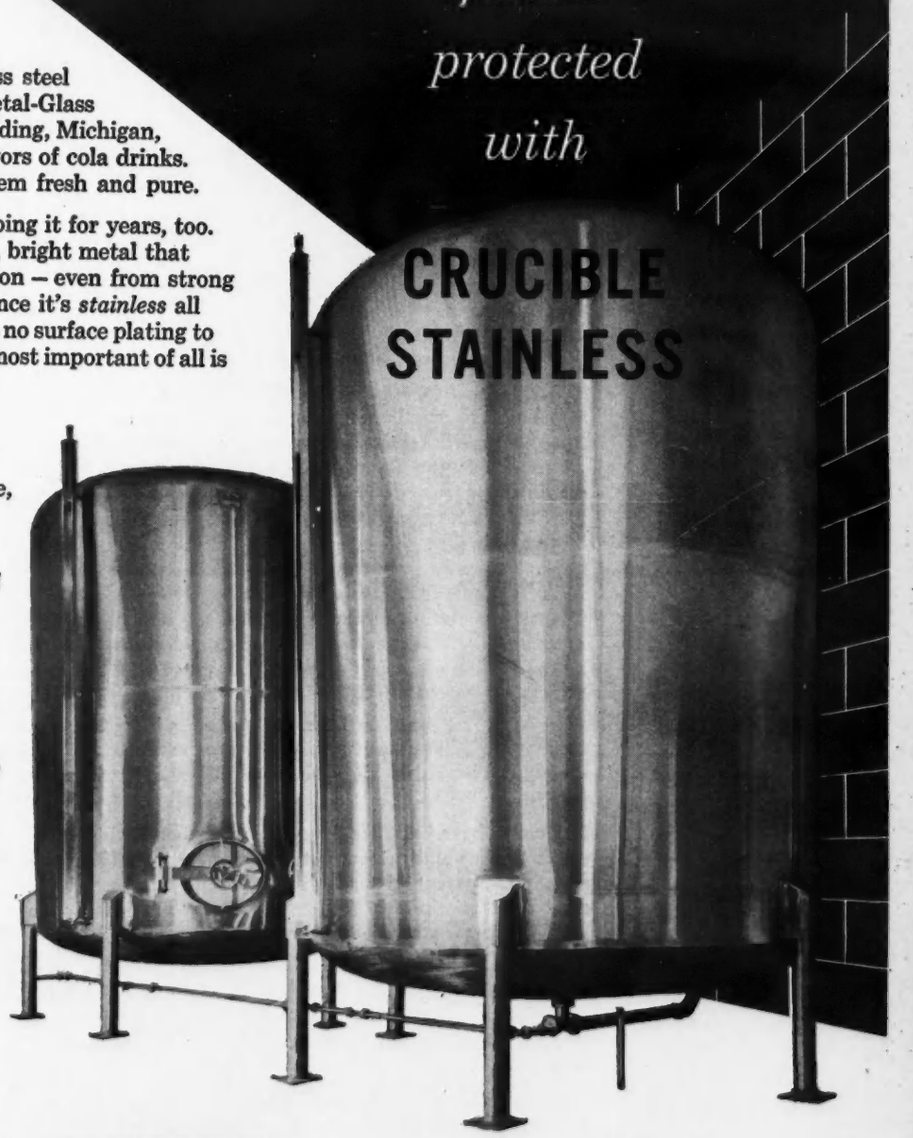
When inquiring check FP 3383 opposite last page

Buyers Guide

(*Continued from page 45*)

Jordan Corporation
6013 Wiehe Road, Cincinnati 30, Ohio
W. A. Kates Company
430 Waukegan Road, Deerfield, Illinois
Keckley Manufacturing Company
400 W. Madison Avenue, Chicago 6, Illinois
King Engineering Corporation
415 Detroit Street, Ann Arbor, Michigan
Lammert & Mann Company
260 N. Woods Street, Chicago 12, Illinois
Leslie Company
Grant Ave. & Val Brook Ave., Lyndhurst, N. J.
Liquidopth Indicators, Inc.
4B-22 10th Street, Long Island City 1, New York
Liquidometer Corporation
36-16 Skillman Ave., Long Island City 1, N. Y.
Macbeth Corporation
P. O. Box 950, Newburgh, New York
Magnetrol, Inc.
2110 S. Marshall Blvd., Chicago 23, Illinois
Magnuson Engineers
509 Emery Street, San Jose 10, California
Manning, Maxwell & Moore, Inc.
250 E. Main Street, Stratford, Connecticut
Marshalltown Manufacturing Company
Marshalltown, Iowa
Mason-Neilan Regulator Company
1190 Adams Street, Boston 24, Massachusetts
Meriam Instrument Company
10920 Madison Avenue, Cleveland 2, Ohio
Minneapolis Honeywell Regulator Co., Indus. Div.
Wayne & Roberts Ave., Philadelphia 44, Pa.
Moeller Instrument Company
132nd St. & 89th Ave., Richmond Hill, N. Y.
Moore Products Company
901 E. Lycoming Street, Philadelphia 24, Pa.
Neptune Meter Company
50 W. 50th Street, New York 20, New York
Norcross Corporation
247 Newtonville Avenue, Newton 58, Mass.
Norden-Ketay Corporation
Wampus Lane, Milford, Connecticut
Ohmart Corporation
2347 Ferguson Road, Cincinnati 38, Ohio
Omega Machine Company
345 Harris Avenue, Providence, Rhode Island
Palmer Thermometers, Inc.
2501 Norwood Avenue, Cincinnati 12, Ohio
Penn Instruments Div., Burgess-Manning Company
4110 Harverford Avenue, Philadelphia 4, Pa.
Potter Aeronautical Company
Route 22, Union, New Jersey
Powers Regulator Company
3400 Oakton Street, Skokie, Illinois
Precision Thermometer & Instrument Company
1434 Brandywine Street, Philadelphia 30, Pa.
Proportioneers, Inc.
345 Harris Avenue, Providence 1, Rhode Island
Republic Flow Meters Company
2240 Diversey Parkway, Chicago 47, Illinois
Research Controls
Box 5035, Tulsa, Oklahoma
Rochester Manufacturing Company, Inc.
100 Rockwood Street, Rochester 10, New York
Arthur C. Ruge Associates, Inc.
733 Concord Avenue, Cambridge, Massachusetts
Ryan Recording Thermometer Company
851 Popular Place, Seattle 44, Washington
Schutte & Koerting Company
Cornwell Heights, Bucks County, Pennsylvania
Shand & Jurs Company
917 Carlton Street, Berkeley 10, California
Simplex Time Recorder Company
Sanborn Street, P. O. Box 280, Gardner, Mass.
Simplex Valve & Meter Company
7 E. Orange Street, Lancaster, Pennsylvania
Stewart-Warner Corporation
1826 Diversey Parkway, Chicago 14, Illinois
F. J. Stokes Machine Company
5820 Tabor Road, Philadelphia, Pennsylvania
Taylor Instrument Companies
95 Ames Street, Rochester 1, New York
York Clock Company, Inc.
1 Grove Street, Mt. Vernon, New York
Uehling Instrument Company
470 Getty Avenue, Paterson 3, New Jersey
U. S. Gauge Div., American Machine & Metals
Sellersville, Pennsylvania
Vapor Recovery Systems Company
2820 N. Alameda Street, Compton, California
Waukee Engineering Company
759 N. Milwaukee Avenue, Milwaukee 2, Wis.
Weksler Thermometer Corporation
195 E. Merrick Rd., Freeport, Long Island, N. Y.
West Instrument Corporation
523 N. Noble Street, Chicago, Illinois
Weston Electrical Instrument Corporation
614 Frelinghuysen Avenue, Newark 5, New Jersey

drinks that "hit the spot"
are
flavor-
protected
with



These gleaming stainless steel tanks, made by the Metal-Glass Products Company, Belding, Michigan, protect the delicate flavors of cola drinks. And they help keep them fresh and pure.

They'll keep right on doing it for years, too. For stainless is a tough, bright metal that resists wear and corrosion – even from strong cleaning agents. And since it's *stainless* all the way through, there's no surface plating to chip or wear away. But most important of all is the fact that stainless is inert . . . *it never adds unwanted flavor to beverages – even dairy products.* And, of course, stainless is a snap to keep spotlessly clean.

That's why it's *standard equipment* for tanks, pasteurizers, bottlers, piping, fittings—*everywhere* that food and metal come in contact. It's the most *practical* choice you can make. So next time you're buying equipment make sure it's of Crucible stainless steel. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

When inquiring check FP 3384 opposite last page

Home Packing Co. makes hams more desirable by removing shank and aitch bone, "Cryovacing" them to protect color and flavor

easier-to-carve half hams increase sales

PROBLEM: Selling shank ends of hams has long been a headache to packers. Housewives, eyeing the big shank bone and muscle, would pass up these half hams rather than struggle with the extra preparation involved. A price differential of several cents a pound at retail level has been the prinicipal way of moving them out of inventory.

Solution: At Home Packing Co., Toledo, Ohio, these half hams are now handled to produce a product so attractive that the price differential has been eliminated. Following the process by the photos, the meat is peeled away and the shank bone removed. The aitch bone is also removed from the whole ham by peeling away the meat and disjointing. The ham is then shaped, placed in cellulose casings, and smoked. Coming from the smoke room, the whole hams are cut in two, placed in shrinkable cellulose (Cryovac) tubes. One end of the tube is sealed with a metal clip. Vacuum is applied to the package, and the other end twist-sealed with a clip. Package is then dipped in hot water (200°F) to shrink the film skin-tight — make a vacuum-sealed package.

Results: The shank half can hardly be distinguished from the butt half. The headache of getting retailers to take shanks is eliminated and the price differential disappears with it.

Customers have benefited by getting half hams which are easier to slice and present better looking slices. The vacuum-sealed transparent film allows the purchaser to see the meat-bone relationship before she buys, provides longer shelf-life, preserves color and weight changes in mass displays.

For the packer there is still another benefit. Since each half has his label printed on the Cryovac bag, his identification goes right home with the consumer. Formerly it was lost when the butcher unwrapped the product to cut the ham in half.

Boning, and removal of excess fat and rind, runs to about a pound per ham. A test on 342 hams showed the total loss from this procedure to be about 340 pounds.

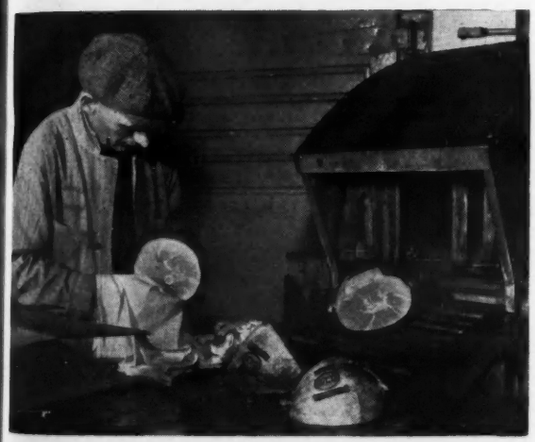
(Cryovac packing is a development of Dewey and Almy Chemical Co., division of W. R. Grace & Co., Dept. FP, 62 Whittemore St., Cambridge 40, Mass. . . . or for more information check FP 3385 on handy form opposite last page.)

After curing ham, aitch bone is removed, disjointing it at ball-and-socket joint as shown here

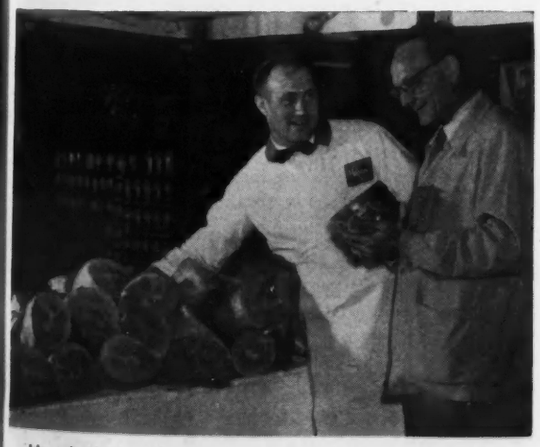
In following step, meat is peeled away, and shank bone removed from the whole, unsmoked ham

After manuallly forming both ends to look alike, ham is smoked, sawed in two

Half hams are packaged in shrinkable film, twist-sealed at both ends

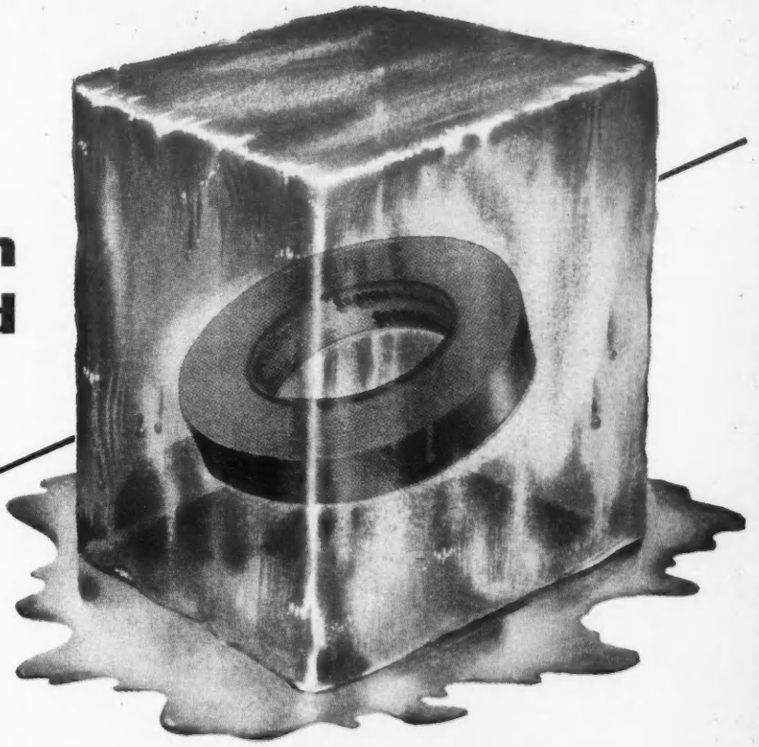


After vacuuming, bags are shrunk in hot water bath to give skin-tight fit



Here both shanks and butts (each so marked) form a mass display . . . both equally popular

TAPE that sticks in freezing cold



Tough, moisture-resistant "SCOTCH" Brand Acetate Fibre Tape sticks at a touch to metal, plastic, wood, glass . . . even at below-freezing temperatures. Long-aging and dimensionally stable, too. Available in 12 eye-catching colors for coding or identifying; can be printed on if desired. Meets Government Specification JAN-P-127. Ask your regular distributor for "SCOTCH" Brand Acetate Fibre Tape, or write us for further information.

Always specify "SCOTCH" Brand, the quality tape . . . and stick with it!

PRODUCT OF 3M RESEARCH

ACETATE FIBRE TAPE

. . . one of more than

300 Pressure-Sensitive Tapes

for industry, trademarked . . .

REG. U.S. PAT. OFF.

SCOTCH BRAND

Look what you can do with it!

PACKAGE your products for cold cabinet display with "SCOTCH" Brand Acetate Fibre Tape No. 710. Hams, bacon, cold cuts, etc. are easily and economically wrapped with this tight-sticking tape.

WRAP packages faster with Tape and "SCOTCH" Brand Box Sealer. Predetermined length of tape is automatically applied to package; 12 tape colors let you code packages or contents.

BAND Frozen Food packages together to make combination deals with "SCOTCH" Brand Acetate Fibre Tape. Tape adheres firmly to wax-treated papers even at below-freezing temperatures.

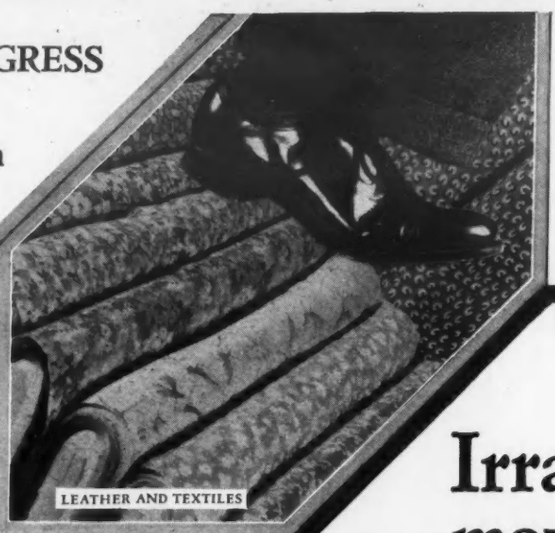
FREE FOLDER shows the many money-saving advantages of packaging with "SCOTCH" Brand Acetate Fibre Tapes; gives tape performance data. Just write on your letterhead to Dept. IF-95.

The term "SCOTCH" is a registered trademark of Minnesota Mining and Mfg. Co., St. Paul 6, Minn. Export Sales Office: 99 Park Ave., New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

When inquiring check FP 3386 opposite last page

G-E PROGRESS REPORT

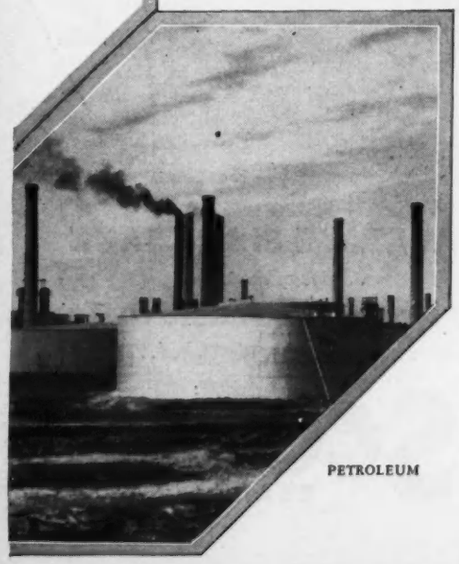
on electron research



LEATHER AND TEXTILES

DRUGS AND SURGICAL PRODUCTS

Irradiation moves into *new* fields



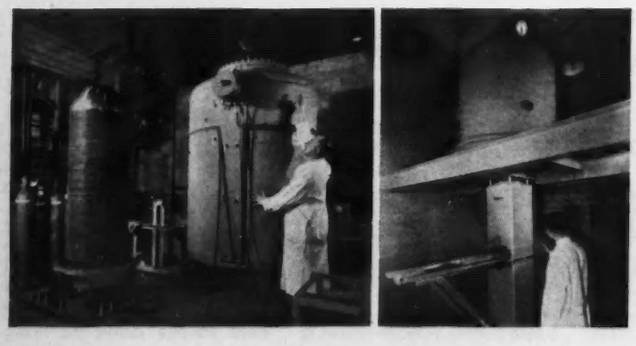
PETROLEUM

INVESTIGATION of high-energy irradiation for sterilization of foods is exciting great interest. It has been hailed as research that could result in the "ideal food preservation method."

From the start, G.E. has invited industry and others to participate in further study. Recent developments indicate the broadening range of this work.

For example, tests have indicated that shoes can be sterilized by high-energy irradiation without detrimental effects to the leather. Also, studies are being made to polymerize silicones in textiles. Gasoline is being tested with a view to polymerizing materials that produce "gum" in storage.

These are just a few of the research projects under way. General Electric offers you an easy plan for your own investigation. Preliminary tests will be conducted at the G-E Laboratory. Should these tests show promise, you can purchase equipment for use in your own plant, or you can rent it under the G-E MAXISERV-ICE® rental plan. For further details, call your G-E x-ray representative. Or write for technical literature to X-Ray Department, General Electric Company, Milwaukee 1, Wisconsin, Rm. BC-94.



New G-E 2-mev electron beam generator (shown in assembly) joins the 1-mev generator (right) to broaden your research range.

Progress Is Our Most Important Product

GENERAL ELECTRIC

When inquiring check FP 3387 opposite last page

new solutions

(*Continued from page* 25)

Following the successful launching of electrostatically smoked bacon last year, Kingan Inc., Indianapolis, has applied essentially the same process to cut hams, which are boned, canned, and marketed under the brand name, "Electro"

each panel is made to depress a microswitch. Removal of any panel releases its microswitch which breaks the circuit to the ionizers.

System is simple to maintain

Sanitation-wise the system is easily maintained. No splattering from product to the walls of the heating section occurs and as a consequence the reflector plates require only minimum attention. Plates at bottom of heating section are cleaned with detergent spray once a week.

Experience has shown that most operating delays are caused by a broken wire on an ionizer coming in contact with a grounded element. This necessitates a shutdown for about 5 minutes while the operator locates and replaces the offending wire.

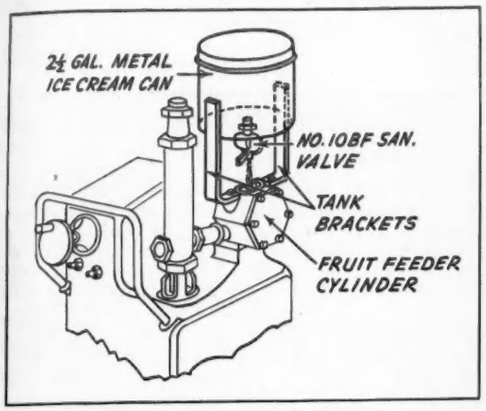
(Continuous process for smoked meats is patented by Kingan Inc. and is licensed by The Albright-Nell Co., Dept. FP, 5323 S. Western Blvd., Chicago, Ill. . . . or for more information check FP 3388 on handy form opposite last page.)

Dairy makes chocolate bit ice cream by modifying regular fruit feeder

The Johnstown Sanitary Dairy in Johnstown, Pa., has contrived a way to put its regular fruit feeder to work making chocolate bit ice cream. Using a standard metal ice cream can, brackets were made to fit the studs on the fruit feeder after the standard feed hopper was removed. A one inch No. 10 BF sanitary valve was attached to the bottom of the ice cream can.

In starting up, a steam hose is used to initially heat the outside of the sanitary valve in order not to chill the chocolate passing through it. Melted slab chocolate is then introduced to the hopper at about 105°F from a can kept on a separate hot plate at about 110°. The valve is opened to feed the desired amount of chocolate directly on to the rotor of the fruit feeder.

Prior to introducing the chocolate, about 10 gallons of ice cream are put through the fruit feeder to chill the rotor. The hot chocolate dropping on the cold



From the Cherry-Burrell "Circle"

rotor of the fruit feeder immediately solidifies in a thin coating on the pump rotor and is then pushed into the ice cream stream nicely broken up by the pistons in the rotor. Only two pistons are used, with two blanked off.

Variation can be made in the amount of chocolate fed to the fruit feeder to suit trade desires.

(Fruit feeder used is Type FFH manufactured by Cherry-Burrell Corp., Dept. FP, 427 W. Randolph St., Chicago 6, Ill. For more information on the fruit feeder alone — without chocolate bit modification — check FP 3389 on handy form which is located opposite last page.)

Removes proteins, trace metals from fats and oils; speeds hydrogenation

A purifying and refining agent for fats and oils, composed of phosphates and high molecular weight acidic wood products, has recently become available. Some of advantages reported for use of this material: More complete removal of proteinaceous bodies; greater susceptibility of product to bleaching; easier partial neutralization; removal of trace metals; accelerated hydrogenation.

(Politol is development of Polychemicals Div. of West Virginia Pulp & Paper Co., Dept. FP, P.O. Box 832, Charleston, South Carolina . . . or for more information reader may simply check FP 3390 on the convenient Reader Service slip which is located opposite last page.)

NEXT MONTH —

An idea which is gaining attention in poultry industry is pre-cutting and freezing of turkeys for institutional use. Meat yield to users is increased 50% and cooking time is substantially reduced when using turkey in this form

Choosing a stainless steel supplier is like choosing a friend; all else appearing equal, the intangibles of service and reputation stand out. Many users of stainless steel turn to B&W because they know B&W's reputation for quality and service, and because they know that B&W controls every step in the tube-making operation from pouring the stainless ingot to carefully inspecting the finished stainless tube. Because B&W quality control more than satisfies all customer and code requirements, every buyer of B&W stainless steel tubes is assured of manufacturing skill, uniformity and close tolerances in every foot of stainless tubing he acquires, and quick service via a nationwide network of B&W stainless tubing distributors.

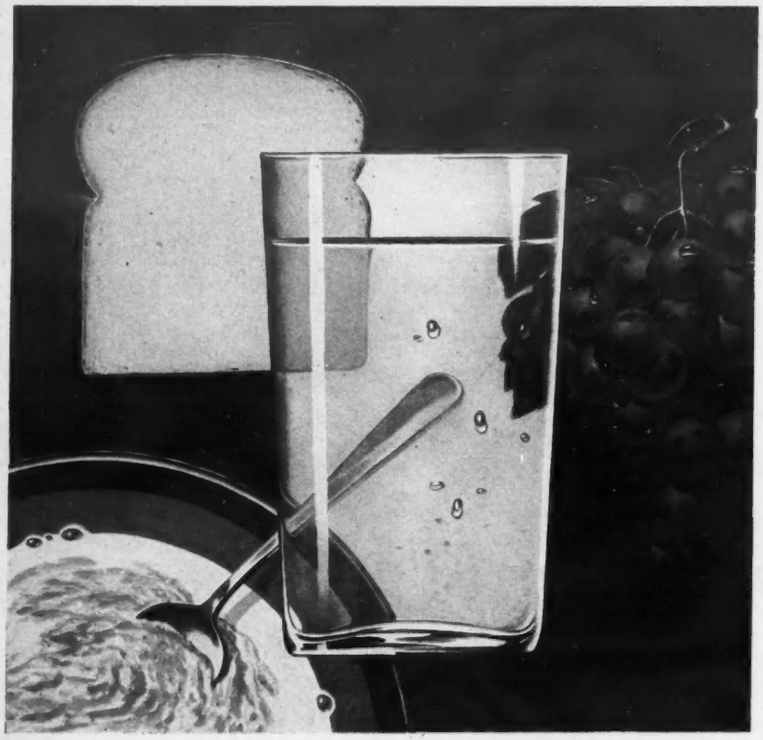
Take a tip from the experience of thousands in the process industries, as well as architects, designers, fabricators and finishers, and get in touch with Mr. Tubes, your link to B&W, for a detailed story of the advantages of B&W stainless tubing and how you can get more for your money with stainless. *Or write for Bulletin TB 355 FP.*

B&W TUBULAR PRODUCTS DIVISION

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
Beaver Falls, Pa. and Milwaukee, Wis.: Seamless Tubing, Welded Stainless Steel Tubing
Alliance, Ohio: Welded Carbon Steel Tubing
Milwaukee, Wis.: Seamless Welding Fittings

TA-5036(P)

When inquiring check FP 3391 opposite last page



Process Foods the Natural Way With Rohm & Haas Enzymes

PECTINASE • DIASTASE • PROTEASE
LACTASE • CELLULASE • LIPASE

Rohm & Haas commercial enzymes are all natural products . . . and among the most effective aids in food processing.

They are easy to use and are well suited to the mild processing conditions common to the food industry. In service they provide many benefits. For example, they clarify fruit juices, aid in the production of pre-cooked breakfast cereals, improve the texture of bread, and make possible "non-sandy" ice cream of higher skim milk content.

Rohm & Haas enzymes catalyze specific reactions; unwanted by-products are not formed. And little enzyme goes a long way toward increased production efficiency and greater consumer sales appeal.

Write to Department SP outlining your food processing problem.

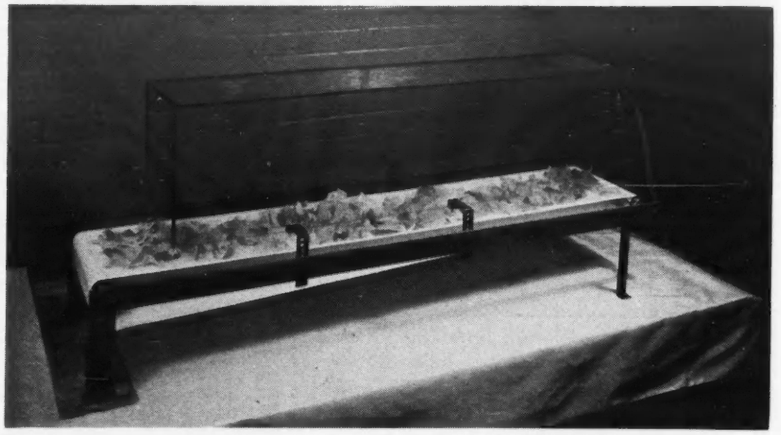
CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

When inquiring check FP 3392 opposite last page



Demonstration unit shows how spray technique is used to apply antioxidant to potato chips traveling on conveyor

shelf life of cereals now greatly extended by antioxidant spray

New technique permits controlled application of stabilizer during routine conveying operation

Lack of a practical method of application has deterred the protection of oxygen-sensitive foods such as dry cereals and fried products with modern food grade antioxidants.

An answer to this problem was recently offered in coating foods with solutions containing antioxidants. This is performed as foods are conveyed in a routine operation by passing them through an atomizing spray chamber. This technique takes full advantage of processing methods which are used at present.

Antioxidants can be sprayed in such mediums as vegetable oil, food grade solvents like propylene glycol, or in a water emulsion. The particular food product to be stabilized determines media used. Active amount of antioxidant applied is easily controlled by various means, including: (a) varying speed of conveyor; (b) varying concentration of antioxidant in spraying media; (c) varying air pressure on spray nozzle.

Experimental data on this development were presented at the annual meeting of the Institute of Food Technologists at Columbus, Ohio, by Dr. Ben Stuckey, senior chemist of the food laboratories of Eastman Chemical Products, Inc., Kingsport, Tenn. It was conclusively shown how effective this method of addition is in extending shelf life of wheat germ meal, cream of corn, cream of oats, cream of barley, brown rice, and potato chips.

Accelerated shelf life of wheat germ meal was extended nine times, and the room temperature storage life of brown rice and rice bran was increased over four times in the laboratory tests.

(Methods of applying Tenox antioxidant to cereals and grains is a development of Eastman Chemicals Products, Inc., Dept. FP, Kingsport, Tenn. . . . or for more information check FP 3393 on handy form opposite last page.)

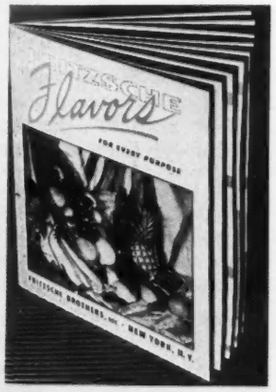
Two new yellow coloring agents blend well with vitamin A

Two yellow coloring agents are highly stable and uniform, can be blended with vitamin A to specification. Use is seen in margarine, shortening, butter, bakery products, edible oils, and others. First of these agents is 20% suspension of micro-crystalline annatto color in refined cottonseed oil. Agent is highly compatable with vitamin A, with no loss of either occurring in severe tests.

Other agent is beta carotene, which has vitamin A activity in itself. Material is stable and easy to handle. Both agents are available in bulk or in custom blends with vitamin A.

(Vegetable Color and Beta Carotene are produced by Chas. Pfizer & Co., Inc., Dept. FP, 630 Flushing Ave., Brooklyn 6, N.Y. . . . or for more information check FP 3394 on handy form opposite last page.)

Colorful cover suggests appeal of flavors listed in catalog



Close sensory relationship between sight and taste is used effectively in a new flavor catalog. Cover illustration pictures a tempting variety of fresh fruits in natural colors and suggests the appeal that is imparted to processed foods by modern, specialized flavoring materials. Illustrations inside the catalog show laboratory and plant operations.

Among the many flavor groups covered in the 20 pages are spicing compounds, natural fruit flavors and concentrated extracts, flavors for confections, and miscellaneous specialties.

"Flavors for Every Purpose" catalog is issued by Fritzsche Bros., Inc., Dept. FP, 76 9th Ave., New York 11, N. Y. When inquiring specify FP 3395 on handy form opposite last page.

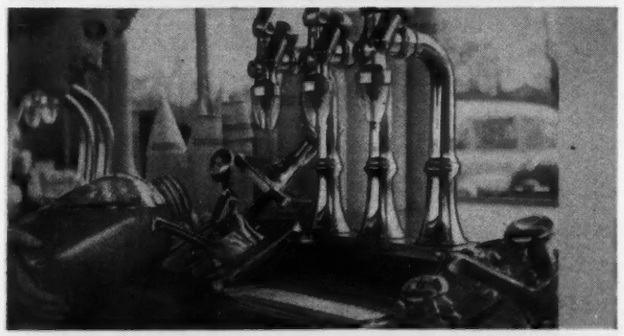
NEXT MONTH —

"Extra-high-strength" gelatin sets fast—can extend shelf-life of marshmallow products

DOW

DOW PROPYLENE GLYCOL, U. S. P.

EFFECTIVE SOLVENT FOR A WIDE RANGE OF MATERIALS



. . . to help you improve food flavors and extracts, flavor concentrates and food colors

There are many reasons why Dow propylene glycol, U.S.P., has gained wide acceptance in the flavoring industry. It offers more efficient solvent action and extends this effectiveness over a broader range of flavoring raw materials. It is dependable in quality, and delivery is prompt—and there's a better than even chance for economy in manufacture through replacement of your present solvent.

Flavors, extracts, colors and concentrates all benefit from propylene glycol's good solvent action. Emulsified flavors gain an additional benefit from the wetting action of propylene glycol and the increased stability it gives these emulsions.

Can Dow propylene glycol, U.S.P., improve your product? We'll send a free sample and property information to help you decide this in your laboratory. Write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. OC808F-1.

you can depend on DOW CHEMICALS DOW

When inquiring check FP 3396 opposite last page

PRIZE-WINNING BUTTERMAKERS PREFER DIAMOND CRYSTAL FLAKE BUTTER SALT!

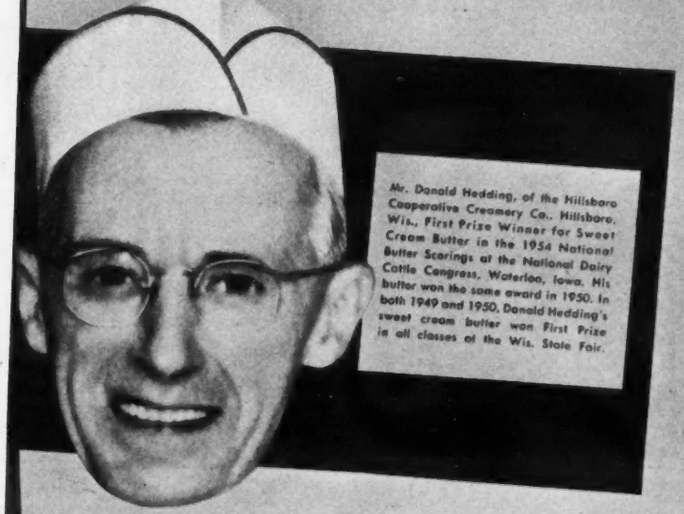
MEMO
FROM WILLIAM FOSTER

Jim --

It looks like these Diamond Crystal people make a salt with just the right purity and grain size for every purpose.

Don't you think it would be a good idea to find out how Alberger Salt can help improve our operation?

Bill



Mr. Donald Hedding, of the Hillsboro Cooperative Creamery Co., Hillsboro, Wis., First Prize Winner for Sweet Cream Butter in the 1954 National Butter Scorings at the National Dairy Cattle Congress, Waterloo, Iowa. His butter won the same award in 1950. In both 1949 and 1950, Donald Hedding's sweet cream butter won First Prize in all classes at the Wis. State Fair.

...rystal Flake Butter Salt for over 10 years," says prize winner Donald Hedding, "because Diamond Crystal's 'soft flakes' consistently do the best job in buttermaking of any salt I've ever seen! I'm sold on the way it dissolves quickly and completely in butter . . . leaves no grittiness. Diamond Crystal Flake Butter Salt never requires extra-long working which can produce mottled, sticky butter. It has a pure salt flavor that never imparts a strong, brackish flavor to butter. I've seen what it can do," says champion Donald Hedding, "and that's why it's my choice!"

Prize-winning butter is the result of many factors—skill born of long experience, painstaking care, good equipment and quality ingredients.

Diamond Crystal Flake Butter Salt helps you make better butter because:

- It's the only Butter Salt made by the exclusive Alberger Process of refining which produces unique, quick-dissolving flake crystals!
- It's pure—highest uniform purity assures true salt flavor!
- It's uniformly sized—precision screening produces flakes that are just the right size and solubility for good buttermaking!
- It's clean—the lowest insoluble content of any butter salt!
- It's low in heavy metals—less than 1.5 parts per million of pre-oxidants copper or iron!

DIAMOND CRYSTAL FLAKE BUTTER SALT

America's Largest-Selling High-Grade Butter Salt!

For further information, write to: Dairy Dept., Diamond Crystal Salt Co., St. Clair, Michigan

When inquiring check FP 3397 opposite last page

Adapt chemical antioxidant for use as feed additive

Acts as stabilizer for vitamins A, D, and E; is readily distributed through mix

A chemical antioxidant, similar to one that has been cleared for human consumption, is now available as an additive to poultry and livestock feeds. It can be added by means of regular equipment. Oil-soluble, this antioxidant is distributed evenly throughout the mix. It acts as a stabilizer for vitamins A, D, and E.

The latter is important in poultry feed as a preventative of encephalomalacia (crazy chick disease), by stabilizing and supplementing vitamin E content of a chick ration this antioxidant helps to prevent the disease. Disintegration of carotene is combatted, color of feed alfalfa protected, resulting in feeds which are more attractive to poultry and livestock.

(Vianol antioxidant is a development of Shell Chemical Corp., Dept. FP, 50 W. 50th St., New York 20, N. Y. . . . or for more information check FP 3398 on handy form opposite last page.)

Dough additives bind free moisture, thereby minimize sticking

Intended for use in crackers, biscuits, and cake doughs, additives pick up and hold free moisture, making the doughs easy to machine without sticking. They are protein concentrates produced from cottonseed embryo.

Concentrates are also highly nutritious, containing all known essential amino acids, significant quantities of essential minerals and the B complex vitamins, and lesser amounts of Vitamins A, C, and E.

(Proflo—for crackers, biscuits, cake mixes, and Lyknut—for sweet doughs, are produced by Traders Oil Mill Co., Dept. FP, P.O. Box 1837, Fort Worth 1, Texas . . . or for more information check FP 3399 on handy form opposite last page.)

Offer stabilizer, emulsifier, sweetener for dietetic frozen desserts in single product

Of interest to ice cream makers is ingredient for dietetic ice cream substitute which combines stabilizer, emulsifier, and sweetener in one product. Chief components are edible vegetable colloids, edible esters, sorbitol, and calcium cyclamate. Ingredient is simply blended in with dairy products according to pre-calculated formula to yield mix of any desired butterfat content. This mix

can be processed in the same way as ice cream mix.

Consumption of this type dessert will not raise blood sugar level if no more than one pint per day is eaten. Reason for this: Although calorie value for carbohydrates in the ingredient is about four calories per gram, they are assimilated and converted to glycogen much more slowly than sucrose, so that the overall effect is quite different. Processors are cautioned that labeling must be clear for this type product.

(Distab frozen dessert ingredient is produced by Germantown Manufacturing Co., Dept. FP, 5100 Lancaster Ave., Philadelphia 31, Pa. . . . or for more information check FP 3400 on handy form opposite last page.)

Tenderize meat before freezing by dipping in solution

Liquid product retains freshness at room temperature

A new liquid tenderizer is easy to use on trimmed cuts by dipping or submerging them in solution and then removing them immediately, allowing excess to drain off. Meat is then allowed to stand at least two hours in a pan, tray, or packed in a container for at least two hours before freezing.

Tenderizer stays fresh indefinitely at room temperature. Solution can be re-used. It is available in 50 gal drums, five gal containers, and one gal jugs. It has approval of Meat Inspection Branch USDA for use in federally inspected plants.

(Age-It is produced by Age-It, Inc., Dept. FP, 4105 Laguna St., Coral Gables, Fla. . . or for more information check FP 3401 on handy form opposite last page.)

For more information on product at right, specify FP 3402 . . . see information request blank opposite last page

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SEALVA flavors—in commercial use for almost three years—give manufacturers a dry powdered flavoring material protected against oxidation, and volatilization.

SEALVA flavors have been enthusiastically adopted by makers of

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- GELATIN DESSERTS
- CEREALS
- SUMMER DRINK POWDERS
- PUDDING MIXES
- DAIRY MIXES
- ICE CREAM MIXES
- CANDIES (pressed wafers)
- PHARMACEUTICALS

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VAN AMERINGEN-HAEBLER, INC.
521 WEST 57th STREET, NEW YORK 19, N. Y.

Alva FLAVORS

What's on the horizon for *your* product?

Quick-appraisal guide on food irradiation

KARL ROBE
Associate Editor

FOOD PROCESSING *is deeply indebted to the following authorities for their help in the preparation of these estimates of product feasibility:*

DR. L. E. BROWNELL, University of Michigan
DR. GAIL M. DACK, M.D., University of Chicago
DR. D. M. DOTY, American Meat Institute Foundation
COL. BELMONT S. EVANS, QM Food & Container Institute
DR. JAMES B. EVANS, American Meat Institute Foundation
DR. S. A. GOLDBLITH, Massachusetts Institute of Technology
DR. J. F. KIRN, Swift & Co.
DR. BRUCE H. MORGAN, QM Food & Container Institute
DR. C. F. NIVEN, JR., American Meat Institute Foundation
DR. MARTIN PETERSON, QM Food & Container Institute
CAPT. REUBEN POMERANTZ, QM Food & Container Institute
DR. MORTON M. RAYMAN, QM Food & Container Institute
DR. RALPH G. H. SIU, Office of Quartermaster General

RESULTS of many tests on the response of different food products to the effects of irradiation are being reported in ever-increasing volume. These results are based on the work of various organizations — making appraisal of the overall picture difficult. Here, in a briefed-down, summary-chart form, are estimates of the potential of many of these products, based on the present status of knowledge. In many cases, the appraisals are made on the basis of exploratory studies and observations. Hence, this information should be regarded as a "jump-off" point only, and further investigation should be made on the changing status of particular products before conclusions are drawn. Because of the newness of this field of research, many variations of results exist — many of which have not been correlated, as these tables indicate.

Most promising economic outlook

Major economic promise for food preservation at present appears to be the possibility of (1) extending the shelf life of perishables to a marked degree, and (2) reducing the amount of refrigeration needed. The refrigerated storage life of some fresh meats and lunch-

(*Continued on page 60*)

TABLE NO. 1

Prospect for Irradiation-Sterilization

Estimated prospects for ultimate successful irradiation-sterilization of specific perishable products (based on reported behavior when subjected to dosages in range of 1 to 3 million rep)

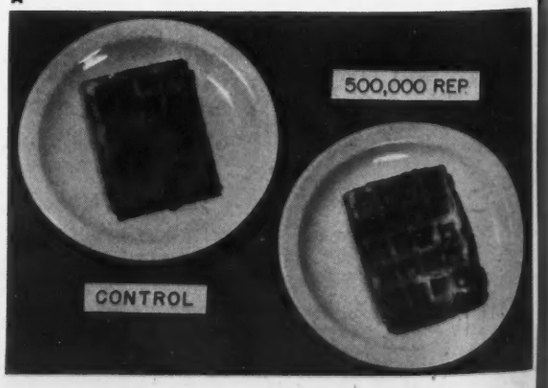
GOOD	FAIR	POOR
Bacon[1]	Apple Juice	Bananas
Beans, Green	Apple Sauce	Beans, Lima
Beef Liver	Asparagus	Cantalope
Broccoli	Beef Steak[1]	Celery
Brussel Sprouts	Cabbage	Cheese
Carrots	Cherries	Lemon Juice
Chicken	Corn	Lettuce
Cod Fish Cakes	Eggs, Dried Whites[2]	Milk
Peas, Fresh	Frankfurters	Oranges
Waffles	Halibut	Orange Juice
	Ham	Squash
	Hamburger[1]	Strawberries
	Lamb Chops	Syrup
	Peaches, Fresh	Tomato Juice
	Pork Sausages[3]	
	Spinach	

[1]These were placed one category lower by one authority.
[2]Opinions differ on this product. It is rated "Good" (at doses less than one million rep) based on observations by some, and "Poor" by another organization, working under different conditions.
[3]Rated "Fair" by one organization, "Good" by another.

Products rated under *Poor* heading, in general exhibit marked off-taste, odor, color, or texture changes at 2 million rep or below. Many such as milk and cheese have been resistant to efforts so far to prevent these undesirable changes.

Those rated *Fair* are products which exhibit taste, color, odor, or textural changes to a limited extent—that is, to an extent which appears controllable through further research.

Those rated as *Good* have all been subject to 2 million rep or above, and have shown minimum change, or changes which are not deemed undesirable.



Here's an example of a product whose prospects for irradiation look good—these pre-cooked waffles were both held for one month at room temperature storage. Note breakdown in physical structure of non-irradiated control on left. Palatibility of irradiated sample on right is reported as good. Note physical breakdown of non-irradiated control.

TABLE NO. 2

Best Prospects for Irradiation-pasteurization

Based on favorable behavior when subjected to dosages in the range of 100,000 to 500,000 rep, the following products at this point show most promise for ultimate success. In this case, a principal advantage economics-wise would be to lengthen the refrigerated shelf life— an increase in the order of five- to ten-fold can be expected in many cases.

Bacon	Fish	Sausages
Beef Steak	Ham	Salami
Brown and Serve Items	Hamburger	Scallops
Cabbage	Lamb	Shrimp, cooked, cleaned[1]
Cherries	Luncheon Meat	Tomatoes
Chicken, Whole Roast	Peaches	Waffles
Cole Slaw	Peas, Blanched[1]	

[1]Range of 500,000 to 1 million rep. The above products have exhibited no change or minor changes not considered commercially excluding, when subjected to partial sterilizing dosages.

TABLE NO. 3

Best Prospects for Irradiation Other Than Sterilizing

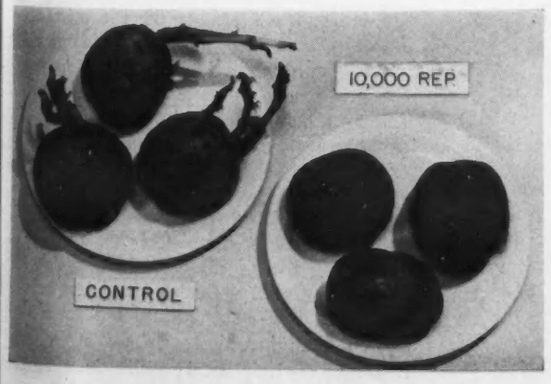
(Range 10,000-50,000 rep)

1. Destruction of parasites (trichina and flukes)
2. Destruction of insects (cereal and grain products)
3. Increased storage life of potatoes and onions of sprouting, and inhibition of sugar formation
4. Suppression of bitter flavor in juice made from navel oranges

Irradiation also has applications for food uses other than its sterilizing function, as shown here. First three points have been studied by several organizations, with promising results. Flour, for instance, will take probable sterilizing dose required to suppress insect infestation (20,000 rep), with a minimum apparent effect on baking and taste qualities. As dosage is increased above this range, however, undesirable changes intercede. Point No. 4 recently reported, has limited observational data at this time.

Potatoes were stored three months at 45°-65° F, after irradiation of test samples at low dosage level

B



An electron beam generator irradiated the sample of meat (at right) at low dosage. Storage was 3 months

C

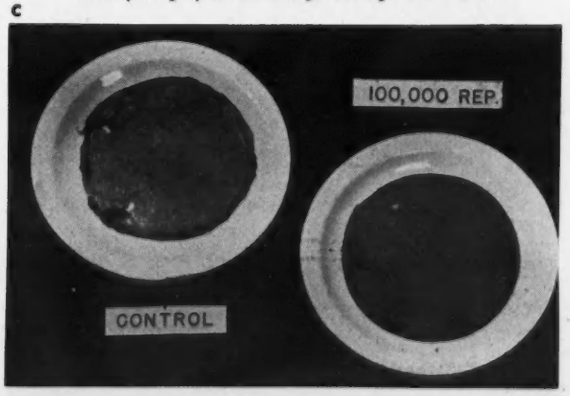


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TABLE NO. 4
Comparative Effect of Irradiation Doses on Living Matter
(cathode rays or x-rays)

Subject	Estimated Lethal Dose rep[1]	Comparative Mean Lethal Dose (D_0) rep[1]
Man	400 to 800	
Insects		
Eggs	to 50,000	
Larvae	to 30,000	
Pupae	to 100,000	
Adult[2]	(50,000 to 1,000,000 (100,000 or less	
"Slime" bacteria, on fresh refrigerated meats[2]	(50,000 to 75,000 (100,000 to 500,000	1500 - 5000
Bacteria, Salmonella[2]	(75,000 to 300,000 (100,000 to 800,000	5000 - 10,000
Mold & mold spores	100,000 to 1,000,000 range	10,000
Bacteria, spores	1,500,000 to 4,000,000	50,000 - 400,000
Virus	2,000,000 to 4,000,000	
Toxin, (botulinum)	in range of 8,000,000	
Enzymes[3]	to 20,000,000 plus	

[1]The language of radiation sterilization deals in the rep unit "roentgen equivalent physical". This table indicates the comparative value of this unit in terms of biological effect. The rep is a unit of energy absorbed by a product when subjected to radiation, and applies to all forms of ionizing radiation, rather than to x-rays only. The actual amount of energy involved is small—for absorption in water, 1 million rep equals about 2¼ calories.

[2]Where reports from two organizations differ, both ranges are reported. Because of newness of this field of research, many such variations exist which have not yet been correlated.

[3]Enzymes are highly resistant to inactivation by ionizing radiation. Some enzymes, for instance, require over 20 million rep for control—and further exploration is required. Therefore, other means to control this property, such as blanching, would be needed in those foods requiring enzyme inactivation.

(*Continued from page* 58)

type meats, for instance, can be lengthened five- to ten-fold when subjected to "partial" or surface sterilization doses. These lower dosage ranges are below the level at which adverse flavor and color changes occur. And they tend to lower irradiation costs and speed production rates.

In time, it may be possible to hold many products, now frozen, for long periods at refrigerated temperatures . . . and possibly at room temperature, in special cases. Prebaked waffles, for instance, (Table No. 2 and photo) have been kept for periods of at least six weeks at room temperature by the Quartermaster Corps, after low-dosage irradiation. Palatibility after storage was reported as very good.

The non-sterilizing prospects for food irradiation could also affect the economic picture of food processing, warehousing, and marketing, as Table No. 3 indicates.

Where do we go from here?

The pioneering aspects of the entire irradiation subject are still proceeding, with guestimates" as to eventual practicality being revised each time a new facet of information comes to light. A "go-slow" attitude now seems current on the near-term total-sterilization aspects of ionizing radiation. Most optimism now is concerned with the promising results achieved with lower dosages than those required for complete bacterial "kill". Combining the advantages of present heat treatment systems with the added impact of irradiation is also beginning to receive attention from investigators. Two big question marks—1. What harm is there from

food irradiation? and 2. Can an economically feasible process be developed?—remain to be answered. Many organizations are now working on these questions. Regardless of which of many paths will prove fruitful, much investigation into the technology of irradiated foods lies ahead—pointing once again to the importance of adequate research in the food industries.

(Note: Tables 1, 2, 3, modified, are based primarily on report by Dr. Ralph G. H. Siu, Technical Director, Research and Development Div., Office of Quartermaster General, in Report to Congress on Radiation Sterilization, 9 May, 1955. Copies of report may be secured from your Congressman, or by writing to Superintendent of Documents, Washington 25, D. C.)

Argonne irradiation facility for sterilizing No 2 cans available for industry use

Treatment of five cans will cost $16 at intense gamma radiation facility

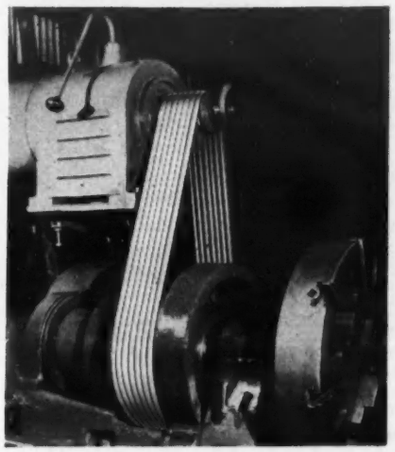
A large irradiation facility for studies of the effects of gamma radiation on foods and other materials has been made available for use by industrial organizations. Making this facility available is part of the US Atomic Energy Commission's program of providing assistance in the development of peacetime uses of atomic energy.

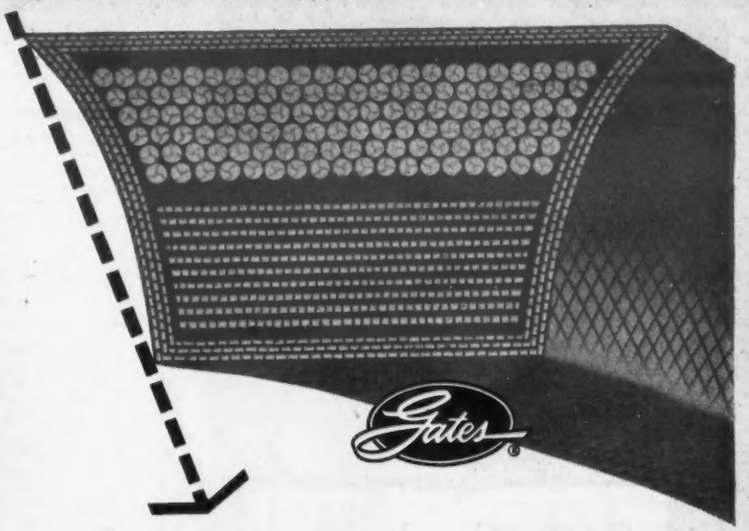
Operation of the facility is under the direction of Miss Gladys Swope of the Chemical Engineering Division of the Laboratory. Any interested person is invited to communicate with her at Argonne National Laboratory, Lemont, Illinois (telephone Lemont 800, Ext 2481).

Cans of foods to be irradiated are placed in watertight, aluminum-stainless steel cylinders called urns. Each urn holds five No 2 cans, or any object or material not in excess of 4" dia and 28" length. The urns are lowered into a "swimming-pool" radiation facility and are placed between highly radioactive uranium fuel elements. To insure uniform exposure to the radiation, each cylinder is rotated slowly during the irradiation period. When placed between four of the fuel elements, a sterilizing dose of 2 x 10^6 roentgen is gained in about 86 minutes. Up to two hours treatment per urn can be had for a $16 charge.

Sterilizing treatments by gamma (x-ray) radiation in general, exhibits the same effects on foods as beta (electron) radiation sterilization treatment. Both types of radiation treatment could eventually become commercially competitive with other preservative processes such as canning (retorting) or freezing, as well as surface sterilization and pasteurization processes.

This large lathe was formerly driven by a flat belt which slipped on heavy cuts, stalled and broke tool bits. Savings on broken tool bits alone offset the cost of the drive the first year—and production was increased 25% after the V-belt drive was installed.





concave sides lengthen V-belt life ...cut costs

Hundreds of plants that keep track of V-belt drive costs know this: Gates Vulco Ropes . . . the V-belts with *concave sides*...wear much longer and *cost less per year of service.*

Here is the interesting reason why:

When a Gates V-belt bends around the sheave, the *precisely-engineered* concave sides (Fig. 1) fill out and become straight. Thus the sides of the belt make full, uniform contact with the pulley (Fig 1-A).

Naturally, uniform contact distributes the wear *evenly*. And *even* wear means *longer* wear.

Longer wear saves not only on replacement costs; it also saves the cost of down-time... keeps equipment producing.

Simple test proves value of concave sides

Take a straight-sided V-belt (Fig. 2) and bend it. Feel the sidewalls of the belt bulge out as the belt bends. You see immediately that the bulging sides prevent uniform contact with the pulley (Fig. 2-A). Uneven contact causes faster wear...increases your drive replacement costs.

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TPA-54A

GATES VULCO ROPE DRIVES

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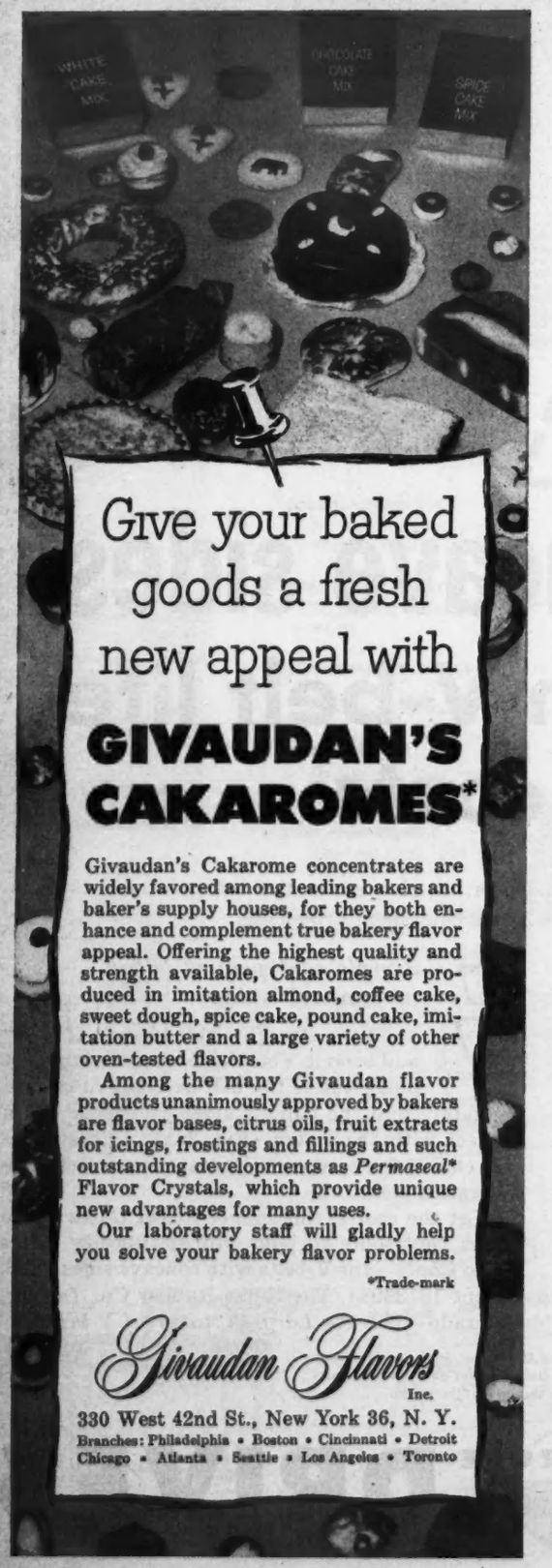
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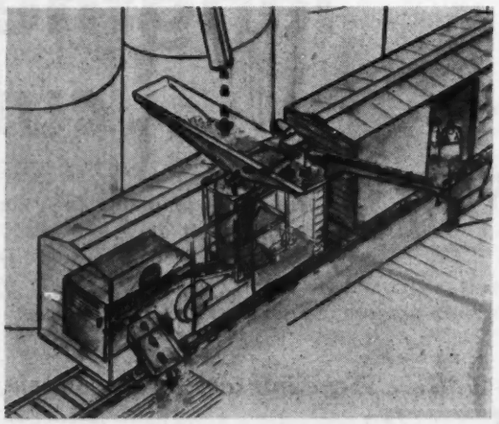
ideas

Preliminary designs completed for crop irradiation equipment

Very small doses would be needed to eliminate insects, sprouting in storage

Preliminary designs of possible equipment for irradiation of grains and potatoes were shown at the recent atomic energy conference sponsored by Stanford Research Institute and the Atomic Industrial Forum. Equipment, using gamma radiation produced by a cobalt-60 source, will eliminate, it is hoped, an estimated average annual grain loss of approximately 150 million bushels, valued at $250 million. It has been established that by such radiation, insect pests in grain can be destroyed or made sterile, and sprouting in storage of potatoes, onions, and other tubers can be prevented without damage or change in flavor or appearance.

Two designs are a possibility — mobile and fixed. The mobile irradiator might be built into a railroad car for treatment of grain at the elevator. It could also be installed in a trailer truck for processing



Mobile grain irradiator installed in railroad car (at left) could process grain either prior to storage in elevators or that which has already been stored. Enlargement of irradiator assembly is shown at right

crops which may have to be stored in open fields or storage warehouses. The fixed irradiator is designed for use permanently within a grain elevator and provides a convenient and simple way of treating grain being unloaded from ships or railroad cars.

Genetic studies at Brookhaven Laboratory have proved that very small radiation doses would be required to achieve the desired results. Shielding on the equipment would be sufficient to keep radiation level on outside of shield within safe limits.

(Designs were prepared by Atomic Energy Division, American Machine and Foundry Co., Dept. FP, AMF Building, 261 Madison Avenue, New York 16, New York . . . or for more information check FP 3407 on handy form opposite last page.)

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Why some microbes can withstand ultra-violet radiation

May be due to iron-containing 'cytochrome systems'

Studies by Bellamy and Germain at General Electric Research Laboratories shed some light on the problem of how some micro-organisms can be revived after exposure to ultra-violet radiations. Their tests show that only those microbes possessing cytochrome systems, with at least trace quantities of iron-containing pigments, survive.

Improved peanut handling could save industry $500,000/yr

USDA scientists report that better quality peanuts and annual savings of $500,000 could be achieved through improved storage and handling of farmers' stock peanuts. Some suggested points include: adoption by all buyers of practices as efficient as those of the top third; shrinkage reduction of 1/12 brought about by improved handling and pest control; reduction by two percent of foreign material in stock peanuts.

(From Marketing Research Report No. 88, "Storage in Marketing Farmers' Stock Peanuts," issued by Marketing Information Division, USDA Agricultural Marketing Service, Washington 25, D.C.)

DID YOU MISS . . .

the Instrumentation Section, beginning on page 307 This section is being spotlighted this month to bring you an up-to-date Buyers' Guide of major instrument manufacturers. There are also articles on how food processors are using newly-developed instruments and panel boards

For more information on product at right, specify FP 3409 . . . see information request blank opposite last page

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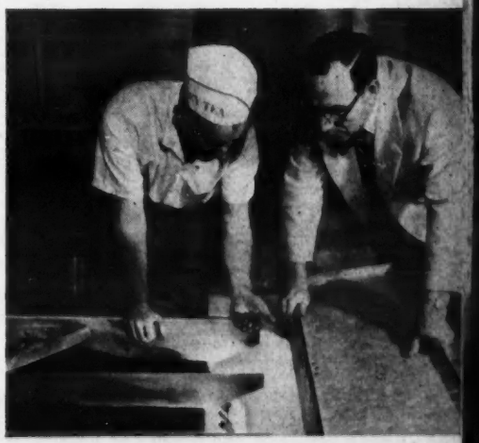
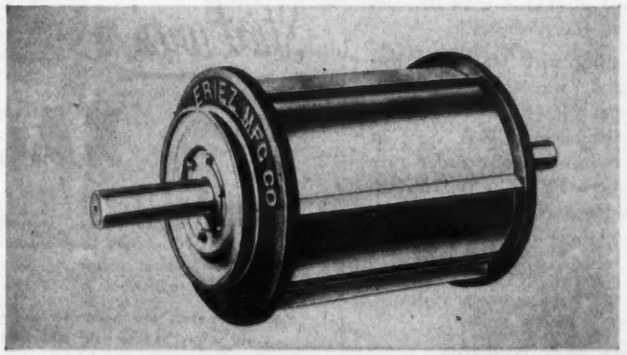
Magnetic ideas from ERIEZ

ERIEZ

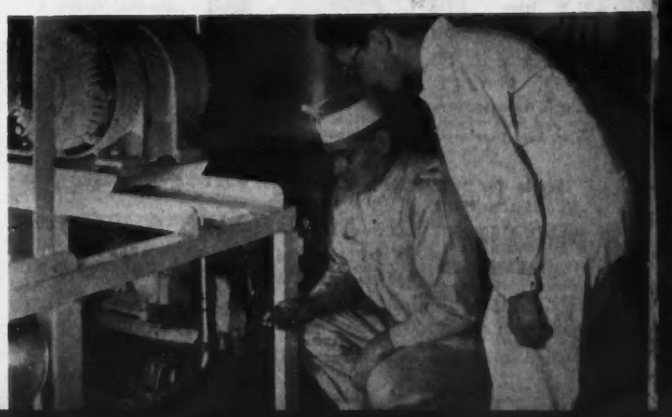
A POUND A DAY KEEPS THE REPAIRMAN AWAY. A 36" Eriez Plate Magnet at the Tetley Tea Company plant picks up about a pound a day of nails, bolts, screws and other tramp iron. The Eriez installation protects the bag machinery . . . *and* is saving about $5,000 a year . . . *and* is saving about 200 man hours annually . . . *and* is increasing production! Besides the plate magnet shown, four other efficient Eriez Magnets have been in operation at the famous tea plant since 1950.





YOU CAN'T BEAT THIS DRUM. The Eriez Magnetic Drum is an unbeatable unit for extracting tramp iron from materials conveyed in spouts, chutes, spiral conveyors, etc. Consisting of units with or without housing, the Eriez Drum is a revolving shell inside of which are powerful Alnico V elements which pull tramp iron from wet or dry material thereby preventing fires, machinery damage and product contamination. Want more information on this product? . . . request Bulletin B-601.

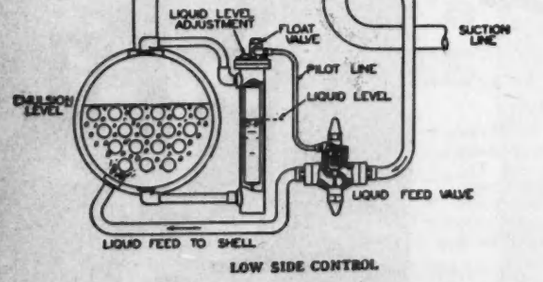
HORSE SENSE FOR HORSE-RADISH. Thor-Shackel Horse-Radish Co., Chicago, installed this sanitary Eriez Pipeline Trap just ahead of the pumps that move the product to the filling machines. The trap assures a product free from metal contamination and also increases production. Previously, any small bits of metal would jam the pump impellers. This would mean a delay of up to an hour *and* the loss of horse-radish removed from the vat to allow the fans to be cleared. The Eriez Pipeline Trap has eliminated all pump failures caused by tramp iron mixed with the horse-radish.



Eriez' free booklet "Magnetic Ideas" can help you. Send for it without obligation. Address: Eriez Manufacturing Company, 75W Magnet Drive, Erie, Pa. Or, on your specific request Eriez' factory-trained field men backed by Eriez' laboratory and engineering know-how will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas".

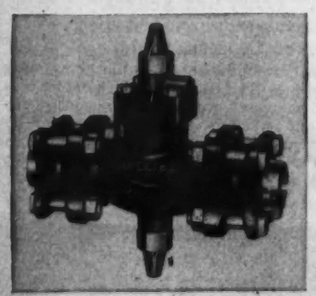
MODULATING-TYPE PHILLIPS VALVES INCREASE REFRIGERATION EFFICIENCY

A line of refrigerant valves that permit higher heat transfer rates and more stable operation of refrigeration systems has been developed by H. A. Phillips & Co., Chicago. The valves are the modulating type which automatically and continuously adjust the refrigerant flow to the refrigeration load. According to Phillips engineers, modulated refrigerant feed keeps evaporator tubes constantly wetted, insuring maximum heat transfer at all times. "Hunting" of system pressures and temperatures, a common occurrence with "off-on" refrigerant control, is also eliminated. Loading on compressors is more even, reducing maintenance problems. Phillips modulating controls include float valves for high and low side installation and both thermostatic and float pilot operated feed valves. They are applicable to a wide range of refrigeration systems.



LOW SIDE CONTROL

A typical low side method of Freon level control using Phillips Valves. Arrangement balances weight of liquid in float chamber with liquid and gas in evaporator. Float Valve at left controls high capacity Pilot Operated Feed Valve.



Phillips Float Valve for use with Pilot Operated Feed Valve. "Level Eye" on float chamber shows liquid level, simplies adjustments. An adjusting stem allows changing control level as much as 2 inches.

Phillips Refrigerant Feed Valves for both low and high side use are available from ½ to 8-in. pipe size for all refrigerants.

Write for full details and typical hook-up drawings.

PHILLIPS

H. A. PHILLIPS & CO.
DESIGNERS AND ENGINEERS
REFRIGERATION CONTROL SYSTEMS
3255 W. Carroll Ave. • Chicago 24, Illinois

When inquiring check FP 3410 opposite last page

ideas

Four new biochemistry coenzymes isolated, available

Four rare coenzymes—cytidine-5′ monophosphate (CMP), cytidine-5′-diphosphate (CDP), cytidine-5′-triphosphate (CTP), and uridine-5′-diphosphate (UDP), have been isolated in pure form and are available for research use. These nucleotides are offered in the disodium form. (Coenzymes are products of Pabst Laboratories, Research Div. of Pabst Brewing Co., Dept. FP, 1037 West McKinley Ave., Milwaukee 3, Wis.)

Continuous vacuum-drying for USDA-developed tomato powder

Tomato powder, developed by USDA scientists with vacuum tray drying equipment, has now been successfully produced by continuous vacuum drying units. Ordinary tomato juice or tomato paste (30 to 40% solids) is concentrated and fed to the dryer, and emerges as a powder containing 1½ to 2% moisture. The product is easier to produce than the analagous orange crystals, because the tomato flavor is retained without significant loss throughout the process.

(Cooperating with USDA in this development was the Chain Belt Co., Dept. FP, 4701 W. Greenfield, Milwaukee 1, Wis. . . . or for more information reader may simply check FP 3411 on convenient Reader Service slip which is located opposite last page.)

Directory of consultants, by name, specialty, location

Latest issue of directory lists chemical consultants of association, their qualifications, specialties, location, and associated companies. Extensive cross-listing facilitates use of 144-page book, made in 6″ x 9″ size for easy handling.

Dietetic Frozen Dessert
Creating NEW business for Ice Cream Manufacturers

Easy to make—with

Diastab®

55 lb. pail (makes 50 gal. finished) 48c lb.
600″ drum (makes 550 gal. finished) 42c lb.

Proven formulas (4% B.F. content up) now widely used, furnished with orders. State butterfat content formula desired.

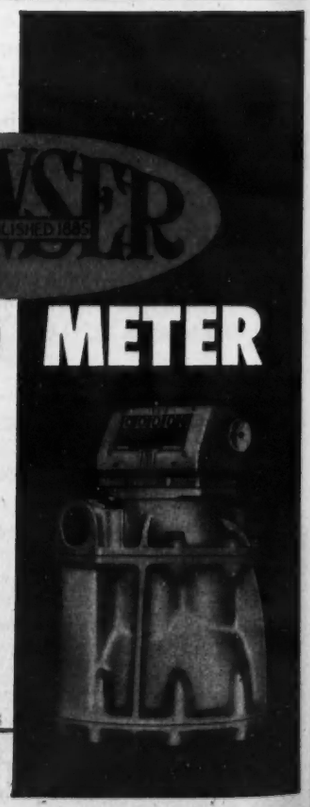
GERMANTOWN MFG. CO.
Phone: GReenwood 7-7660
5100 Lancaster Avenue Philadelphia 31, Pa.

When inquiring check FP 3412 opposite last page

IF YOUR AUTOMATION PROGRAM INCLUDES LIQUID MEASURING...

Start with a BOWSER (ESTABLISHED 1885)

XACTO METER



FOOD processors have learned that the Bowser XACTO meters have proved to be the answer to product uniformity, increased production and reductions in operating costs.

XACTO meters are accurate and dependable . . . will safely handle over 600 different liquids in processing, blending, packaging and many other batching or blending operations.

Consult with the Bowser man in your area or write today for complete XACTO metering, proportioning and packaging data.

BOWSER, INC.
1304 Creighton Ave., Ft. Wayne 2, Ind.

BOWSER
SALES OFFICES—ATLANTA • CHICAGO • CLEVELAND • DALLAS • DETROIT • KANSAS CITY • LOS ANGELES • NEW YORK • PITTSBURGH SAN FRANCISO • HAMILTON, ONTARIO

When inquiring check FP 3413 opposite last page

REAL FRUIT FLAVORS WITH THE FUGITIVE AROMAS CAPTURED

• RASPBERRY
• STRAWBERRY
• CHERRY • GRAPE

• FLAVOREX *real* fruit flavors are constantly gaining wider use in the manufacture of fine foods. These "real" fruit flavors may be used straight or with imitations to achieve extra deliciousness, richness, and character for your product.

Our "Low-Temp" process coaxes out and captures the very last drop of goodness in the fruit. Even delicately elusive, but important volatiles are collected and entrapped.

Write for full information and samples. Consult us on flavoring problems.

Also available: Complete line of highly concentrated imitation flavors for all uses.

FLAVOREX CO. INC.
MAKERS OF FINE FRUIT JUICE FLAVORS
302 S CENTRAL AVE BALTIMORE 2, MD

When inquiring check FP 3414 opposite last page

Vast Majority of Skin Irritants Encountered in Industry Rendered Harmless by "Kerodex"

Highly damaging substances such as epoxy resins, bichromates, acids, alkalis, glues, paints, varnishes, and thinners are no longer a source of irritation when "Kerodex" prevents contact with the skin. "Kerodex" spreads on like a cream but acts like a glove that is invisible yet strong and as elastic as the skin itself. Does not smear. Does not affect materials handled and is not affected by them.

"Kerodex" is available in two types — for "wet" and "dry" work. For full information on "Kerodex"® and a detailed list of irritants write to Ayerst Laboratories, 22 East 40th Street, New York 16, N. Y.

5554

When inquiring check FP 3415 opposite last page

"Consulting Services" (1955) is available on letterhead request, together with remittance of $1.00, from Association of Consulting Chemists and Chemical Engineers, Inc., Dept. FP, 50 E. 41st St., New York 17, N. Y.

Tough polyethylene stands 1000 psi, holds shape even in live steam

Some of tests which new tough, rigid polyethylene passed recently include: Live steam bath without losing shape; withstanding 32 ft-lb/sq in blows after cooling to −78°F; in pipe form, holding pressures up to 1000 psi. Plastic should be particularly useful in pipe form. Small commercial quantities are now available, with large-scale production expected in the fall.

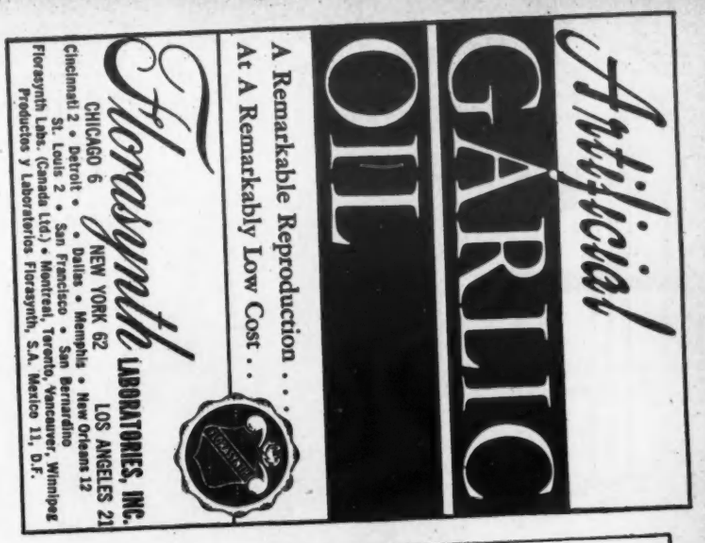
(Super Dylan polyethylene is development of Koppers Co., Inc., Dept. FP, Koppers Bldg., Pittsburgh 19, Pa. . . . or for more information check FP 3416 on handy form opposite last page.)

Mixing time of flours dependent on their pentosan content

Workers at the University of Nebraska report a relationship between mixing time of various flours and the amount of a certain water-soluble pentosan present in flour. In their tests, the pentosan fraction was removed from a short-mixing-time flour, producing a flour requiring exceedingly long mixing. The pentosan can then be added back to a flour to produce any desired mixing time.

(Work was performed by P. J. Mattern and R. M. Sandstedt, Dept. of Biochemistry and Nutrition, Univ. of Nebraska, Lincoln, Neb.)

Handy Product Directory is located on pages 105 and 106 this month


Artificial
GARLIC
OIL
A Remarkable Reproduction . . .
At A Remarkably Low Cost . .
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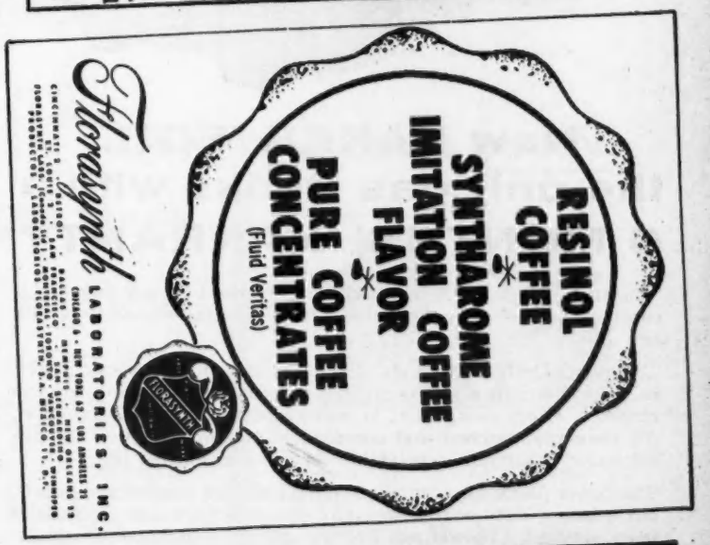


FLORASYNTH LABORATORIES, INC. — Executive Offices — 900 Van Nest Ave. (Box 12), New York 62, N. Y.

EXECUTIVE OFFICES — 900 Van Nest Ave. (Box 12), New York 62, N. Y.

When inquiring check FP 3417 opposite last page

New BAKER "FG"... the only gas trucks with a 6 MONTHS' WARRANTY

"Balanced Design" a revolutionary concept in gas fork truck construction now makes possible a full 6 months' warranty on the new Baker "FG" line.

"Balanced Design" demands that every step in the overall design be determined in relationship to the ultimate purpose of the machine. Every component is engineered to its specific function. All elements matched and coordinated to work together for top efficiency, maximum dependable service and longest life.

The power plant, for example, is not a modified automotive engine, but a heavy-duty engine specially designed for rugged industrial truck service . . . power rated to the specific capacity of the truck. Transmission, drive axle, brakes, lifting mechanism, etc., are then carefully engineered to match the power plant and meet the capacity requirements of the truck.

These are some of the reasons why Baker "FG" is the only gas fork truck with a full 6 months' warranty.

Baker "FG" gas fork trucks are available in 3,000, 4,000, 5,000 and 6,000 pound capacities. Specific bulletins are available.

8 Reasons Why The Baker FG Fork Truck Is First In Its Class . . .

1. LOWER INITIAL COST—FG-40 (4000 lb.) $4295. Other models at proportionate savings.

2. LONGER WARRANTY PERIOD—Baker quality permits full 6 months' warranty.

3. HIGHER LIFT—Mast design allows higher standard lift than ordinary trucks.

4. LOWER MAINTENANCE COSTS—Designed for easier and less frequent servicing.

5. MORE MANEUVERABLE—Short turning radius cuts aisle width, adds floor space.

6. EASIER TO OPERATE—Greater visibility . . . easy-to-work controls.

7. GREATER STABILITY—Lower center of gravity . . . higher "stability factor" ratio.

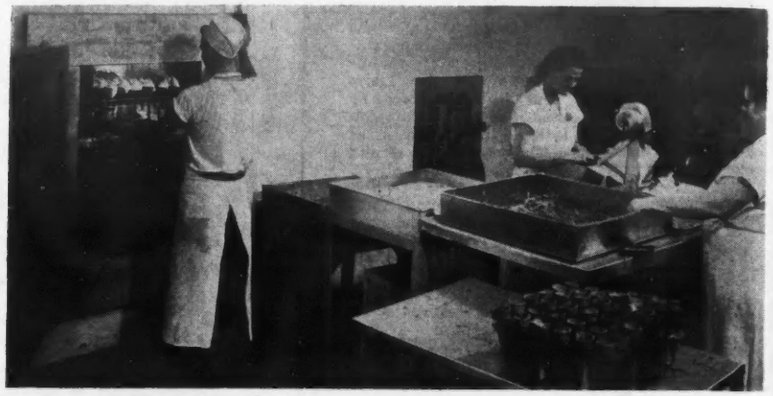
8. BETTER BRAKING—Full floating, self-equalizing, self-energizing brakes.

Baker handling equipment

THE BAKER-RAULANG COMPANY
1221 WEST 80th STREET • CLEVELAND 2, OHIO
A subsidiary of Otis Elevator Company

509

When inquiring check FP 3418 opposite last page



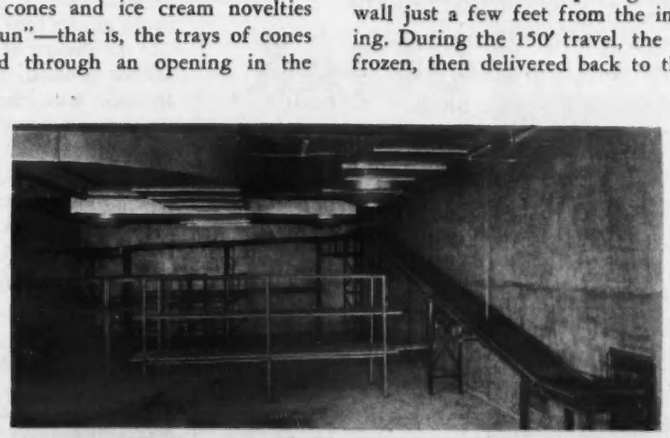
Hardened ice cream cones are removed at left, ready for packaging. At right is combination filling and packaging area. When used for filling, the trays of cones enter cold room through entry shown in background between two women

Eliminates stacking, pushing racks, saves one man in hardening room. . .

cold room conveyor smooths production

Handling racks of ice cream cones from the filling operation into the hardening room has been eliminated by mechanization at J. J. Schmidt, Inc., Cincinnati. Instead, they have arranged to freeze their pre-filled cones and ice cream novelties "on the run"—that is, the trays of cones are passed through an opening in the hardening room, directly onto a belt conveyor.

Conveyor travels overhead around the cold room (−15 to −20°F), and carries the cones to another opening in the same wall just a few feet from the inlet opening. During the 150′ travel, the cones are frozen, then delivered back to the filling



View inside the hardening room at J. J. Schmidt plant during construction. Trays of ice cream novelties enter port at right, and circle the −20°F room to give a plus 2 hr holding time. By elevating conveyors as shown here, more cold room space is attained for storage

Here, the hardening cones in cold room are transported back into filling and packaging room

room for packaging. The conveyor system holds around 100 of the 36-cone baskets—enough to keep the packaging crew busy for two hours. This holding time allows the cones to harden sufficiently for handling, so that they can then be packaged and cartoned.

By arranging the conveyor system overhead most of its route, additional cold room space is gained. Stop-go controls are installed at both the inlet and discharge openings, so that the operator can load or unload with no lost time.

(Conveyor system is product of The E. W. Buschman Co., Inc., Dept. FP, Spring Grove & Clifton Ave., Cincinnati 32, Ohio . . . or for more information check FP 3419 opposite last page.)

Automatic palletizer loads 36 cases per minute

How cases of uniform size are palletized in interlocking patterns as rapidly as 36 per minute is explained in an 8-page bulletin. Regulation and selection of patterns is by one-dial control. A complete variety of patterns can be selected. For example, pattern selectors are available to build a pallet load with alternately recessed tiers. With certain limits, loads that overhang the edges of the pallet can also be built in interlocking pattern. Installations are available which provide one pattern per machine or plug-in cartridges for each pattern.

All types of pallets are handled, and it is not necessary to fill them manually into the magazine. Pallets are fork-trucked and supplied to the machine without interrupting operations.

Lock-load palletizer bulletin (Series 406000) is issued by Packing Equipment Div., Food Machinery and Chemical Corp., Dept. FP, Riverside, Calif. When inquiring specify FP 3420 on handy form opposite last page.

The new Six-Wheeler has 181½" wheelbase, 250A Mustang Engine, 507B transmission, SBD1555 tandem axle, ratios 5.57-6.80. Tire size 10.00x20. Air brakes. Body is 22 ft. long, 7 ft. high.

Payloads Going UP! Delivery Costs DOWN!

with WHITE 3000 Fleet

YOU CAN do more work with a WHITE 3000!

Look at the record of Burg Trucking Corp., New York—with their modern fleet of Whites.

Operating in heavy-traffic areas, President Morris Burg wanted to go to bigger delivery units, but did not want to sacrifice on maneuverability and driving ease.

On new White Six-Wheelers body length was increased to 22 ft. for substantial boost in capacity—nearly 3 ft. longer without increasing overall length. "We handle more payload—more deliveries—with substantially the same operating costs," Mr. Burg says.

THE WHITE MOTOR COMPANY • *Cleveland 1, Ohio*

Aluminum body is specially insulated with reinforced roof and floors. Overhead rails handle carcass meat on hooks. Below 30° temperature.

Morris Burg, President
Burg Trucking Corp.
New York City

Michael Cohen, Manager
Food Fair Stores, Inc.
Meat Packing Division
Elizabeth, N. J.

Modern Six-Wheelers Add Efficiency to BURG TRUCKING Corp. Operations

MODERN methods of meat handling and distribution include the White 3000 as used by Burg Trucking Corp. for Food Fair Stores and from New York's Washington Market rail heads and slaughter houses to wholesalers and chain warehouses in Greater New York, Albany, Philadelphia and many points in New Jersey.

Burg Trucking Corp. has been using Whites since 1944 . . . now has a modern fleet of 40 units, 26 of which are White 3000's.

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

When inquiring check FP 3421 opposite last page

BEECH-NUT BRAND

STONE & WEBSTER ENGINEERING CORPORATION

These FAMOUS COMPANIES KNOW from experience that a CORRIGAN CONVEYOR SYSTEM

- CUTS MATERIALS HANDLING COSTS
- PAYS FOR ITSELF
- INCREASES PRODUCTION through GREATER EFFICIENCY
- SAVES VALUABLE FLOOR and STORAGE SPACE

BIGELOW Rugs - Carpets

LEVER BROTHERS COMPANY

CLARK

The company names, trademarks and symbols shown here represent a partial list of customers who are using Corrigan Conveyor systems.

If your company has a materials handling problem, or, you plan to build a new plant or an addition to present facilities — let our 30 years of diversified experience help you. Corrigan *quality* engineered conveyor systems will prove a *profitable* and *lasting* investment. We cordially invite your inquiry — no obligation, of course.

Complete Bulk SUGAR HANDLING SERVICE

Refineries • Specially Designed CONDENSATION-PROOF RR Cars
In-Plant systems for all types of food processors.

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J. C. Corrigan Co., Inc.

MATERIALS HANDLING SPECIALISTS TO INDUSTRY FOR OVER 30 YEARS

Main Office-Plant

41 Norwood Street, Boston 22, Mass.

When inquiring check FP 3422 opposite last page

New series of walk-in trucks for all multi-stop needs

Described as custom low body walk-in units built by production line methods

Pictured below is one of the pilot models of a recently introduced series of trucks specifically designed for multi-stop service. Described as custom low body walk-in models, they provide extra cargo capacity with an inside height of 73".

New Divco truck built in 117 and 130" wheelbase

Intended for use in distribution of bakery, packaged, and specialty foods, plans are to "beef up" this new vehicle for the wholesale milk delivery field.

This new series features forward control and windshield visibility exceeding 200°. Model 42 has 130" wb; model 52, 117" wb. The latter turns completely around easily in a 40' street. Both have 6-cylinder engines with AMA hp rating of 29.4. Both have 4-speed synchro-mesh transmissions.

("Dividend Series" trucks are built by Divco Corp., Dept. FP, 22000 Hoover Road, Detroit 5, Mich. . . . or check FP 3423 opposite last page.)

Warehouse space often doubled by use of special storage units

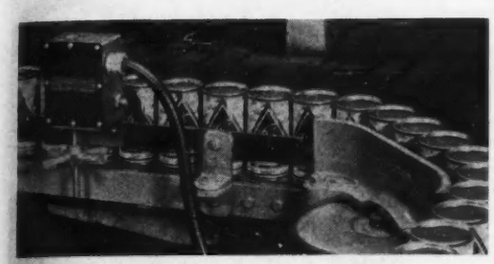
How proper space utilization and simplified handling can increase warehouse capacity is explained in a 16-page brochure. Over twenty-five actual installations of shelving, racks, and bins are illustrated and described. They provide practical examples of how such equipment provides better use of existing facilities.

"How to Double Warehouse Capacity" is issued by the Frick Gallagher Mfg. Co., Dept. FP, Wellston, Ohio. When inquiring specify FP 3424 on handy form opposite last page.

Remotely located counter actuated by waterproof contactor on line

Grouping of counters for all lines on panel assures quick check; prevents tampering

Actuator designed for use on can and bottle lines has its switch sealed against moisture. As it withstands washdowns and similar exposure, it can continuously and accurately actuate electric counter remotely installed in a dry location.



Actuator counts 10 units at once, increasing its own life and also that of counter

Contactor is gear-reduced to count 10 units at once. This increases its own life and that of the counter it serves.

Because counters are panel-assembled at central point, production of each line is quickly and easily checked. Remote location of counters prevents tampering. Units have been field-tested for many months. One installation has accounted for 24½ million accurate counts.

(Contactor E-S-5-X and Counter 6-Y-1-MF are available from Durant Mfg. Co., Dept. FP, 1951 N. Buffam St., Milwaukee 1, Wis. . . . or for more information check FP 3425 opposite last page.)

Economies of aluminum trailers quickly figured by chart

Profits available through use of aluminum trailers, bodies, and wheels can be computed quickly by a "weight-rate-profit" chart. It was developed from actual records of fleet operators.

By using such known factors as the weight saved, plus average rate for cargo carried and the number of trips per year, extra yearly profits are determined. To aid in converting volume measure into weight, the chart lists the volume weight ratio of such commodities as milk, flour, sugar, and wheat.

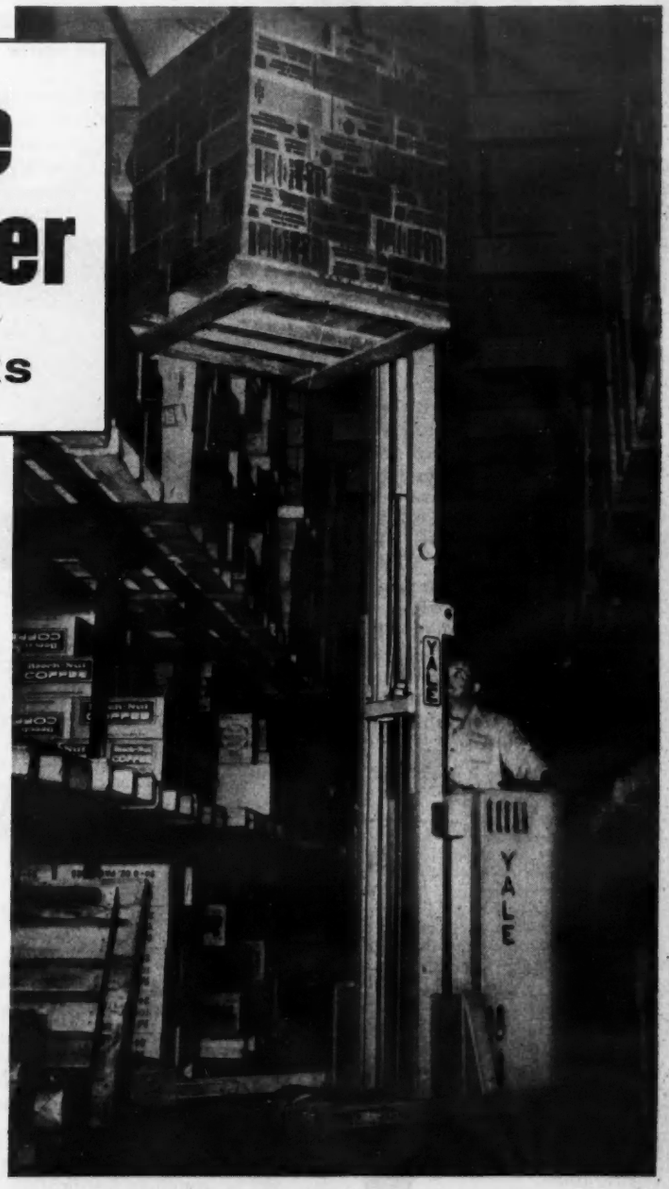
This profit chart is issued by the Aluminum Co. of America, Dept. FP, 767 Alcoa Bldg., Pittsburgh 19, Pa. When inquiring specify FP 3426 on handy form opposite last page.

Now! More storage space—without costly construction!

New Yale Warehouser

equipped with exclusive

EXTEND-A-FORKS



MORE SPACE SAVED! The new YALE Warehouser eliminates the clearance between storage racks formerly required to accommodate outrigger wheels. Extend-A-Forks pick up and deposit loads with outrigger legs always in aisle.

Great new space-saving feature brings biggest economies yet to vast storage operations of the food industry

Now you can double, even triple, your present food storage areas—simply by moving existing storage racks as close together as 6 feet or less...and adding new storage racks to the valuable space saved! The new YALE Warehouser makes this possible—has the same famous high lift, speed of operation and narrow-aisle maneuverability of the full YALE Warehouser line...with a brand-new space-saving exclusive—YALE Extend-A-Forks.

Extend-A-Forks *reach out* with up to a 30-inch stroke to pick up loads... *pull back* to carry loads tucked in and tilted for operation in aisles of minimum width. Only YALE offers you this cost-saving extra...in a 2,000 or 3,000 lb. capacity truck with so many big truck features. Send coupon for full details.

YALE*

INDUSTRIAL LIFT TRUCKS AND HOISTS

*Reg. U. S. Pat. Off.

Gas, Electric, Diesel & LP-Gas Industrial Trucks
Worksavers • Warehousers • Hand Trucks
Hand & Electric Hoists

MAIL THIS COUPON TODAY

The YALE & TOWNE Manufacturing Co., Dept. 109
Roosevelt Boulevard, Philadelphia 15, Penna.

☐ Please send full information about the YALE Warehouser.

Company_____

Name_____ Title_____

Street_____ City_____ State_____

In Canada write: The Yale & Towne Manufacturing Company
St. Catharines, Ontario, Canada

When inquiring check FP 3427 opposite last page

BIN STUCK LATELY?

If you're troubled with sticking, arching, bridging or settling conditions, just install a CLEVELAND AIR OR ELECTRIC VIBRATOR to positively solve the problem. All the items necessary to complete an installation are available in kit form . . . so easy . . . and costs so little.
CLEVELAND
VIBRATOR

What's the problem in your case? Just tell us . . . or ask for our detailed literature.

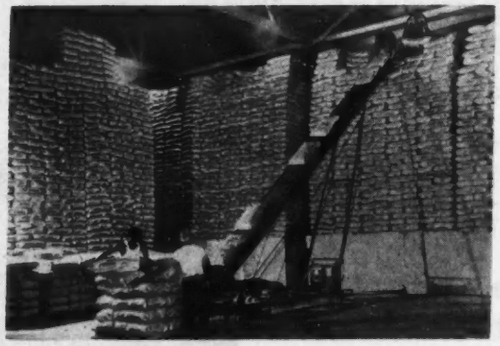
Cleveland can furnish both
AIR AND ELECTRIC VIBRATORS.

THE CLEVELAND VIBRATOR COMPANY

2818 Clinton Ave. • Cleveland 13, Ohio
When inquiring check FP 3428 opposite last page

Elevating sugar sacks at 45° utilizes valuable space

Special ridged and cross-cut rubber surface of belt provides gripping action that enables sugar sacks, weighing 100 lb each, to ascend 24′ at a 45° angle. As many as six paper sacks at a time ride up this 33′ belt at Haslett Warehouse Co., Stockton, Calif.



Stacking sugar sacks 42 high

With belt formerly used, only a 35° angle was possible and only three bags could be carried at one time. Because bags can now be stacked 42 high, instead of 30, utilization of cubic area of warehouse is greatly increased.

("Ribflex" belt is made by B. F. Goodrich Co., Industrial Products Div., Dept. FP, 448 C. Main St., Ohio . . . or for more information check FP 3429 on handy form opposite last page.)

Explains operation, design features of balanced pan-type conveyors

Pan-type conveyors in two types of pan mounting are described in four-page illustrated booklet. These are the conventional and the vibration-free, balanced-pan types.

Photographs, drawings, and drive data charts give complete information. Operation of the balanced pan is explained. It operates through a system of counterbalances at ends of rocker arms. Rear drive construction permits unit to be lower and more compact. Only a small amount of supporting structure is required due to counterbalanced action of pan.

This type conveyor is especially suitable for difficult bulk materials. Totally enclosed models are being used successfully for conveying and cooling powdered coffee.

Bulletin 3255 on pan-type and conventional conveyors is issued by the Simplicity Engineering Co., Dept. FP, Durand, Mich. When inquiring specify FP 3430 on handy form opposite last page.

PROFIT...

from Robo-Lift EXPERIENCE

Gentle, clean, compact Robo-Lift handling of free-flowing solids and powder improves production, cuts costs and reduces delays! That's Robo-Lift *user experience*, proved in successful installations nationwide.

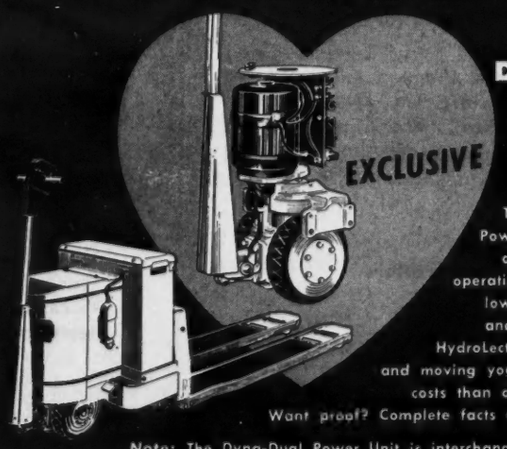
The outstanding performance and efficiency of Robo-Lift methods and equipment . . . developed through specific *field experience* applied by engineers using modern facilities . . . can save time, trouble and money for you, too.

If you want better handling at lower cost for bigger profits, include Robo-Lift advantages on your production line. For information, may we have the details of your problem? Send them today!

This operation clearly demonstrates Robo-Lift utility. One unit supplies ten to either of two blenders on demand. A second Robo-Lift receives it from blenders for elevation to mezzanine and packaging.

COUNSEL MACHINE COMPANY, INC.
8 Hathaway Street • Wallington, N. J.
When inquiring check FP 3431 opposite last page

Heart of the HydroLectric



THE DYNA-DUAL POWER UNIT

This sturdy Dyna-Dual Power Unit out performs all others for ease of operation — dependability — lowest maintenance cost and economy of power. HydroLectrics will keep rolling and moving your materials at lower costs than any truck in its class. Want proof? Complete facts and data on request.

Note: The Dyna-Dual Power Unit is interchangeable on all models.

LIFT TRUCKS INCORPORATED
2423-31 SPRING GROVE AVE.
CINCINNATI 14, OHIO

There is a model for every purpose to handle any kind of material

When inquiring check FP 3432 opposite last page

Soup's off— in just 6 minutes

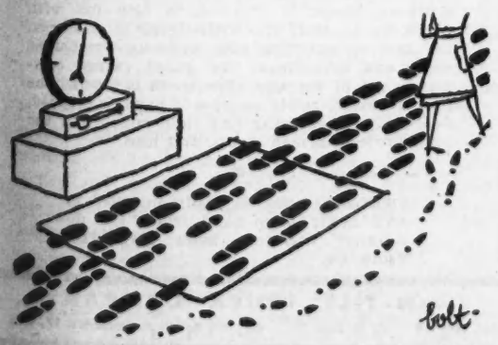
Soup's on — or off, as in this instance — in a hurry when handled in pallet loads on a large flat-bed trailer. View here shows how 30,000 lb of canned soup were unloaded in just six minutes in a demonstration at new warehouse of Calumet Industrial District Co., Chicago, first of a number that will form the world's largest food distribution center.

Unit removing pallet loads is a gas fork truck with

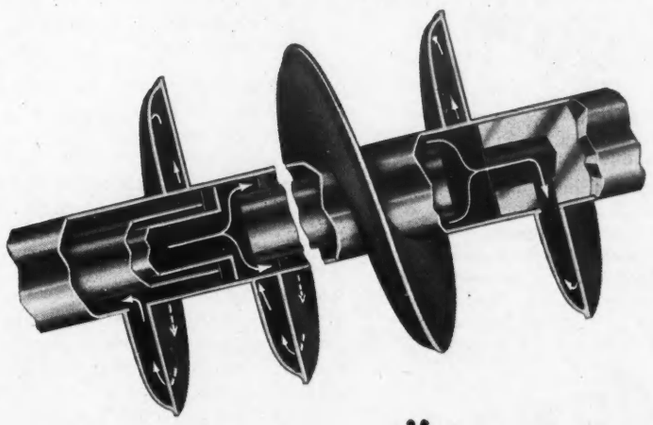
Gas fork truck with electric transmission speeds unloading of 30,000 lb shipment

electric transmission. It lifts 4000 lb loads to heights of 164". With this transmission there are no clutch, gears, overdrive, or hydraulic torque converter. Stepless transmission permits infinite range of speeds up to 8 miles or more per hour. Rear exhaust chamber minimizes fumes and backfiring hazard is reduced.

(Truck model GLF40 is built by Automatic Transportation Co., Dept. FP, 149 W. 87th St., Chicago 20, Ill. . . . or for more information check FP 3433 on handy form opposite last page.)



A great new advancement in heat exchangers...



THE holo-flite* PROCESSOR
(HOLLOW-FLITE)

A simpler, more compact way to cool slurries, solids or pastes—in continuous flow!

Do you have processes where slurries, solids, pulps or pastes must be cooled or cooked? Do you know you can now handle such processes—*in continuous flow*—in as little as 1/5th the space required by other types of heat exchangers—and with many other important advantages?

The newly-developed HOLO-FLITE Processor is the answer!

what IT IS!

Basically the HOLO-FLITE consists of two or more flights of hollow-bladed screw conveyors. The product to be processed moves in a trough around the conveyor screws. The heat-transfer fluid circulates through the hollow blades and shafts of the conveyor. The product is constantly rotated into, around, under and over the blades and shafts through which the heat-transfer fluid is circulating, assuring quick, uniform heat passage between the two mediums—*as the product is continuously moved along in a bulk-flow without interruptions!*

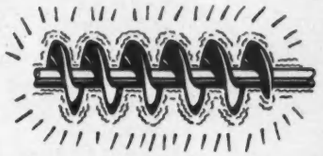
Get the complete story on HOLO-FLITE *savings and how this new advancement can simplify your processing operations. It is backed by the same organization that pioneered* COTTRELL *Precipitators and* MULTICLONE *Collectors—your assurance of complete dependability.*

DETAILED INFORMATION! New 8 page bulletin describing HOLO-FLITE features and applications will gladly be sent on request. Write, wire or phone for your free copy!

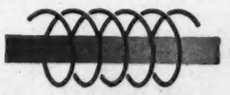
*Reg. T.M.

why IT'S BETTER!

The HOLO-FLITE principle provides many important advantages in modern processing operations...

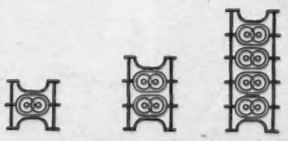


ITS LARGE HEAT-TRANSFER SURFACE requires far less space—as little as 1/5th the space required by other heat-exchange equipment. Further, flights can be "stacked" as high as desired to save floor space, simplify installation!



ITS SLOW ROTATION IS SO GENTLE that granular and powdered solids are handled with no dusting—little or no particle abrasion. Result—no dust recovery problems . . . simple, inexpensive installation.

IT IS ADAPTABLE to a wide range of applications—handles solids, pulps, pastes and slurries with equal ease. Heat transfer agent can be refrigerant, water or other fluids to provide a wide range of temperatures. Cooled products can be packed directly from HOLO-FLITE discharge, saving time, space and additional handling.



IT CAN BE DESIGNED to handle virtually any capacity by varying the diameter and length of the flights, and the number of "tiers."

WESTERN Precipitation CORPORATION

DESIGNERS AND MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1061 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 N. La SALLE ST. BLDG., CHICAGO 2
3252 PEACHTREE RD. N.E., ATLANTA 5 • HOBART BLDG., SAN FRANCISCO 4
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring check FP 3434 opposite last page

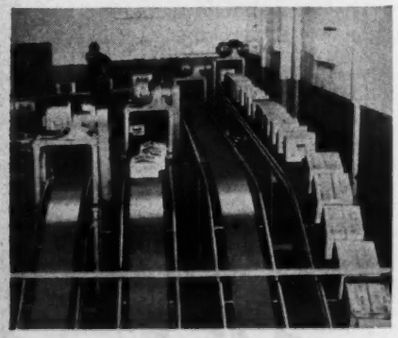
Want to move things

up

For lifting or lowering — floor-to-floor — the INCLINEBELT

Continuous package conveying — a complete belt conveyor system or the Inclinebelt—complete, compact easy-to-install, electric-motor powered unit. High, continuous-line load capacity for any floor elevation. Available in belt widths of 8-12-14-18-24-30 and 36 inches.

down



For inclined or horizontal conveying — the UTILITY BELT-VEYOR

Conveys from floor-to-floor. Moves "packages" down, up or horizontally. Electric motor powered. Installs over existing stairways, or can be used as a portable Levelbelt conveyor. Four standard belt widths: 10-14-20 and 24 inch.

or

horizontally?

For straight line or inclined conveying — assemble your own system or portable conveyor using HANDI-DRIVE pre-built units

These stock, pre-built conveyor units make it easy to assemble what you want in a conveyor. Converts existing gravity conveyor to power conveyor — quickly and at low cost. Can be installed as single portable unit or complete system.

Standard builds conveyors to speed any ONE or all THREE

Call your Standard representative listed in your classified phone book or send for illustrated Standard General Catalog describing all three units — address Dept. FP-95

STANDARD CONVEYOR COMPANY

General Offices: North St. Paul 9, Minnesota • Sales and Service in Principal Cities

Standard

GRAVITY & POWER Conveyors

ROLLER • SLAT • WHEEL
SECTIONAL • BELT • CHAIN • PUSH-BAR

PORTABLE CONVEYOR UNITS:
HANDIBELT • INCLINEBELT • EXTENDOVEYOR • UTILITY BELT-VEYOR
HANDIPILER • LEVEL BELT • LITEWATE • HANDIDRIVE
PNEUMATIC TUBE SYSTEMS

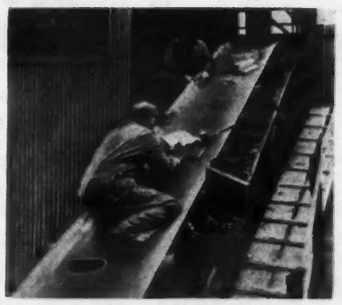
When inquiring check FP 3435 opposite last page

Simplifies repairs on conveyor belts

Belts returned to service immediately

Self-vulcanizing rubber material permits quick repairing of bruises, tears, and edge damage on conveyor belts without use of heat or heavy vulcanizing equipment. Loss of production time is reduced — no curing required.

The rubber repair material seals out moisture, reduces mildew, rot, and deterioration. Material can be applied by regular maintenance crew, no particular skill being required. Material can be used to cover metal belt fasteners.



Worn spot on conveyor belt being sealed with abrasive-resistant patch

(Rema self-vulcanizing rubber repair material is available from Flexible Steel Lacing Co., Dept. FP, 4607 Lexington St., Chicago 44, Ill. Check FP 3436 opposite last page.)

Tells how steel strapping protects shipments

Pocket-size illustrated guide tells how to strap containers, barricade car doorways to protect shipments, and speed packaging and shipping. A complete selection of hand and power strapping tools and machines is listed.

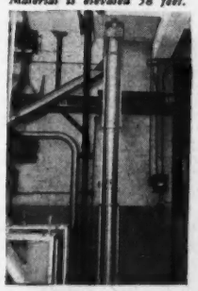
Packaging and Carloading Guide is issued by Signode Steel Strapping Co., Dept. FP, 2600 N. Western Ave., Chicago 47, Ill. When inquiring specify FP 3437 opposite last page.

HAMMOND Screw-Lifts

Save Handling Dollars

for The Quaker Oats Company OF CANADA LIMITED

Horizontal Feeder receiving ingredients from hoppers thru floor above and conveying them to vertical Screw-Lift. Material is elevated 58 feet.



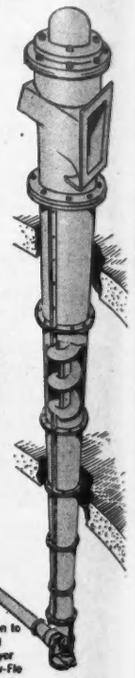
Screw-Lift discharging into cross conveyor.

Material Handled Automatically • Production Increased • Simple, Economical Installation • Space Requirements Nil • Man Handling Eliminated

This Hammond Screw-Lift is handling Feed Ingredients in the Peterborough, Ontario plant of Quaker Oats Company. Material is piped by Screw as though it were a liquid. Lift functions in limited space where no other type of conveyor could be installed. Screw-Lift design permits installation with minimum disturbance to existing processing equipment.

Operation offers safety—speed—cleanliness and low cost. Features give quiet operation and instant accessibility. Entire system co-related with plant flow.

Available in 6 types and 4 sizes with nominal capacities ranging from 75 to 3000 cu ft. per hour. Made of black steel or corrosion resistant materials to suit substance handled.



Write for Bulletin M-500-2

Screw Conveyor Corporation

HAMMOND, INDIANA • HAMMOND, ONTARIO
HAMMOND, MISSISSIPPI • SANTA CLARA, CALIFORNIA
MANUFACTURERS

Companion to Hammond Screw-Veyor and Screw-Flo

When inquiring check FP 3438 opposite last page

TWIN-TILT

again leads the hand truck field with SWINGARD, an extra safety feature.

SWINGARD

TWIN-TILT trucks are of all metal construction with full welded frame and have no bolts or rivets to work loose. Engineered for maximum ease of operation, TWIN-TILT is the only hand operated truck with the patented, labor saving, auxiliary frame. It lifts up to 1200 lbs. with finger tip control. The SWINGARD is of sturdy, bar iron construction with accurately machined shaft and mountings. The guard swings completely out of the way when truck is moving the load, swings to safety position if truck is dropped, automatically catching and fully supporting the load, protecting man, truck and load.

●

SWINGARD can be easily installed on ANY heavy duty hand truck. For descriptive literature write TWIN-TILT Truck Co.

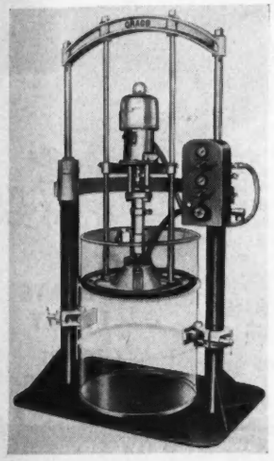
TWIN-TILT TRUCK COMPANY

Dept. FP • P. O. Box 11 • St. Bernard, Cincinnati 17, Ohio

When inquiring check FP 3439 opposite last page

Cleans 55-gal drums as it empties them of semi-solid, thick, or gummy materials

Savings in material are reported to pay for the pump and "ram" combination



Uses: Pumps thick, gummy, or semi-solid materials direct from 55-gal drums to spray or extrusion guns or to other containers.

Features: It is reported that this air-operated "ram" and pump pays for itself quickly by completely evacuating drums of high-priced materials.

Description: In operation, follow plate is "rammed" pneumatically into drum. As it descends, its wide, flexible edge scrapes sides of drum clean and forces material into pump.

(Air-operated "ram" and pump are products of Gray Company, Inc., Dept. FP, Graco Square, Minneapolis 13, Minnesota . . . or for more information check FP 3440 on handy form opposite last page.)

Flexible plastic reefer lining resists mildew and staining

Unaffected by vinegar, lard, citrus juice, oils; remains flexible at −10°; cleaned with steam

A vertically ribbed flexible plastic lining for refrigerated trailers resists staining or damage by mildew or such foods as vinegar, catsup, lard, mayonnaise, and citrus juices. Among the most important advantages of the flexibility feature is reduction in damage and leakage caused by fracturing. Flexibility is retained at temperatures as low as 10° below zero. Lining can be cleaned quickly with steam.

Lining weighs about the same as plywood types. It is a thermoplastic blend of plastic and synthetic rubber. First used during World War II for defense material, its applications now include aircraft, consumer and industrial products, and refrigeration equipment. Use in reefers has been subject to rigid tests.

("Flex-Tuff" linings made from U. S. Rubber's "Royalite" have been introduced by Trailmobile Inc., Dept. FP, 31st and Robertson, Cincinnati 9, Ohio . . . or for more information check FP 3441 on handy form opposite last page.)

CLARK'S PUL-PAC SYSTEM

...cuts labor and pallet costs $39,000

Operation is simple. The Pul-Pac grasps an edge of the fiberboard pallet and pulls it onto the truck's forks. To unload, the Pul-Pac pushes against the load, and the material slides into a stored position.

Clark's Pul-Pac system enabled Narragansett Brewing Co. to convert to fiberboard pallets for their materials handling operations.

HERE ARE THE SAVINGS that Narragansett reported:

- **Labor time cut to 20 man-hours per freight car—a saving of $20,000 per year.**
- **Pallet investment cut from $21,000 (wooden pallets at $7) to $1800 (fiberboard pallets at 60c)—a saving of $19,200.**
- **Other savings: increased storage space, reduced damage to supplies, and lower pallet maintenance cost.**

Clark's Pul-Pac is typical of the complete line of attachments designed to make your Clark equipment more versatile, more profitable. Get full details by calling your local Clark dealer today.

Industrial Truck Division

CLARK EQUIPMENT COMPANY
Battle Creek 15, MICHIGAN

CLARK EQUIPMENT

Baking Industry Exposition — Oct. 1-6th Atlantic City

When inquiring check FP 3442 opposite last page

Palletizing Costs Reduced

AS MUCH AS

80%

A Lamson Automatic Pallet Loader Palletizes Rice Chex At Ralston Purina Co., Battle Creek, Mich.

WITH A

LAMSON

AUTOMATIC PALLET LOADER

The First Automatic Pallet Loader . . . And Proven In The Field

A LAMSON SAVES TIME

Lamson . . . the original Automatic Pallet Loader, can palletize up to forty cartons per minute . . . from one to seven different product lines. The Lamson Pallet Loader palletizes at the highest proven capacity with minimum product damage. Cartons fed from one or more accumulator lines are stacked in almost any pre-determined interlocking pattern.

A LAMSON SAVES MAINTENANCE

Simplified design, employing proven type electrical circuits, makes any maintenance easy with ready access to all motors and working parts.

A LAMSON SAVES SPACE

Lamson Automatic Pallet Loaders will fit into almost any convenient plant area . . . there are no floor holes or special supports needed. Side by side installation is possible because cartons can be received from six different directions . . . empty pallets can also be loaded into one of three sides.

A LAMSON SAVES PRODUCT DAMAGE

The Lamson Automatic Pallet Loader produces stacking patterns more stable and uniform than those produced manually, with the least product damage . . . there is no hydraulic oil to smear cartons.

LAMSON AUTOMATIC PALLET LOADERS STACK 1,500,000 CARTONS EVERY 8-HOUR DAY IN:

OIL

Esso Standard Oil Company Bayonne, N. J. 1 of 13 loaders in the oil industry

BREWERY

Anheuser-Busch, Inc. St. Louis, Missouri 1 of 56 loaders in brewing industry

SOAP POWDER

Lever Bros. Company Hammond, Ind. 1 of 9 loaders in soap powder industry

AND THESE INDUSTRIES: Soft Drink • Floor Tile • Sugar • Chocolate Syrup • Shortening • Insulated Wire and others

WRITE TODAY for the free booklet which shows how you can save thousands of dollars yearly with the Lamson Automatic Pallet Loader.

LAMSON

Plants in Syracuse and San Francisco Offices in Principal Cities

MAIL THIS COUPON TODAY!
Lamson Corporation,
3629 Lamson Street, Syracuse, New York
Gentlemen: Please send me a free copy of your booklet on Lamson Automatic Pallet Loaders. This entails no obligation, of course.
NAME ..... TITLE .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

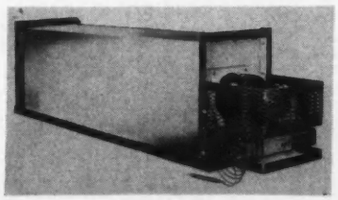
When inquiring check FP 3443 opposite last page

materials handling

Low-cost refrigeration for trucks carrying frozen, non-frozen loads

Dry-ice unit has capacity of 200 lb, installs easily

A 200-lb capacity dry-ice truck refrigeration unit incorporates thermostatic temperature regulation. Range is from zero to 70°F. Units are easy to install and simply constructed. Main body has a 2″ false bottom which acts as a refrigerating



Temperature-controlled bunker

air duct. A low-amperage sirrocco-type fan forces air along path of chilled metal plate. Chilled air is circulated through truck. Other models down to 50 lb capacity are available.

(Frigi-Matic bunker is available from Foster-Built Bunkers, Inc., Dept. FP, 757 W. Polk St., Chicago, Ill. . . . or for more information reader may simply check FP 3444 on handy form opposite last page.)

• "THAT'S INTERESTING"

Water fire extinguisher pressurized by air

A fire extinguisher filled with water under air pressure is said to be the first of its kind using air pressure rather than a CO_2 cartridge or soda acid charger. It can be charged with a tire pressure hose. It's Underwriters-approved. Valve operated—just squeeze handle to release stream. Pressure gage indicates when unit is ready for use.

(Elk-Air extinguisher, 2½ gal, is made by Elkhart Brass Mfg. Co., Inc., Dept. FP, 1306 W. Beardsley Ave., Elkhart, Ind. . . . or for more information check FP 3445 on handy form opposite last page.)

(*Continued on page* 109)

New SA 744 45° TROUGHING IDLER

PROVIDES GREATER CAPACITY, MORE EFFICIENT CONVEYING

The new 744 Grain Carrier features 45° end rollers that provide a deep trough for top capacity, continuous conveying of grain and other light weight bulk materials. Ruggedly constructed for longer life and less maintenance.

QUALITY FEATURES . . .
- SPUN END, ONE-PIECE ROLLERS
- PERMANENT, DOUBLE-LABYRINTH SEALS
- PRECISION BALL BEARINGS
- PRE-LUBRICATED
- QUICK, EASY CHANGE ROLLERS

IN STOCK FOR IMMEDIATE DELIVERY
Write for Bulletin 355

STANDARD PRODUCTS DIVISION
STEPHENS-ADAMSON MFG. CO.
17 Ridgeway Ave. Aurora, Illinois

When inquiring check FP 3446 opposite last page

METZGAR CONVEYOR SPECIALTIES

and a full line of standard GRAVITY • POWER BELT • LIVE ROLLER and FLOOR TO FLOOR CONVEYORS
ASK FOR DETAILS

FLEX-A-SWITCH 2 OR 3 WAY
FLEX-A-TAIL
NON-SHEARING SAFETY GATE
BUTT SPURS CURVED OR STRAIGHT
PRESS CONVEYORS MANY STYLES
BANDING HELPER

METZGAR CONVEYOR CO.
461 Douglas St., N.W. GRAND RAPIDS, 4, MICHIGAN

When inquiring check FP 3447 opposite last page

So many important features
mean
more value for your dollar

DARNELL CASTERS
& E-Z ROLL
WHEELS

PERFORM MORE EFFICIENTLY AT LOWER COST AND LAST LONGER!

PERFORM MORE EFFICIENTLY AT LOWER COST AND LAST LONGER!

...OVER 4000 TYPES
of CASTERS & WHEELS

All types of rubber treads - soft, medium and hard - for smooth operation on all kinds of floors. Featuring Neoprene rubber treads - resistant to steam, water, oxidation, oils and waxes and unaffected by most chemicals - expertly compounded to Darnell standards in our own rubber factory.

1. LONGER EQUIPMENT LIFE
2. GREATER FLOOR PROTECTION
3. EASY EQUIPMENT MOVABILITY

All Darnell Casters, whether steel or rubber tread, are available with various top plates, stems and fittings for any type of application. Or, Darnell engineers will gladly design a special type caster for your own individual equipment. Demand Darnell for Dependability.

DARNELL CASTERS & WHEELS

Always SWIVEL and ROLL

Write for Free Manual

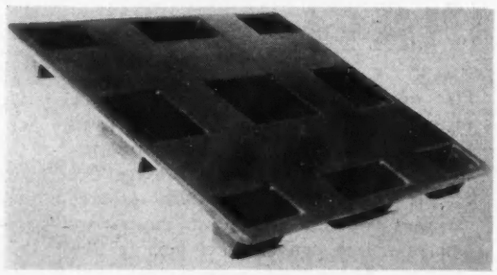
DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

When inquiring check FP 3448 opposite last page

Easy cleaning and close nesting featured in plastic pallet

Can be steam sterilized; 100 pallets stack up in height of 7′ 8″, occupy 102 cu ft

Working loads of 3000 lb are supported on plastic pallet weighing only 28 lb. Molded of polyester resins and reinforced with Fiberglas, the pallet resists oils, greases, acids, and alkalines. It can be kept clean by steam sterilizing at temperatures up to 325°F. Construction eliminates nails and fasteners that could damage load. Nine hollow legs, molded in one strong piece with the platform they support, are spaced to allow 4-way approach of fork-lift truck. Nesting feature permits 100 pallets to be stacked at a height of 7′ 8″ and occupy only 102 cu ft of storage space. Plastic withstands sub-zero temperatures. In fact, strength and rigidity increase as temperature drops. Range of colors is available, molded into pallet.



One-piece plastic pallet has nine hollow legs, supports working load of 3000 lb

(Pallets molded of Bakelite polyester resins are available from Firmaline Products, Inc., Dept. FP, Midland Park, N. J. . . . or for more information check FP 3449 on handy form opposite last page.)

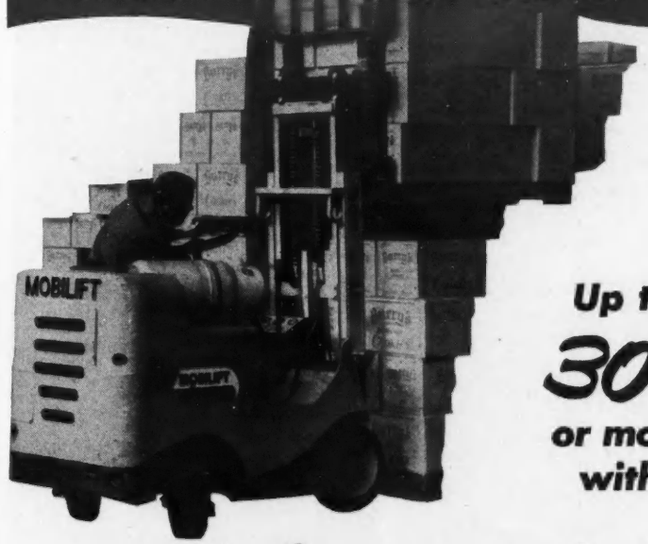
Non-stretch greaseproof belts don't retain food particles

Conveyor belts that are grease-resistant, waterproof, and withstand up to 250°F sustained heat and 325°F intermittent heat are designed especially for handling hot bread, potato chips, nuts, and a wide variety of unwrapped foods. They are made of closely-woven duck impregnated with a special white Hycar compound. Cover is pure 1/32″ Hycar.

Belt surface does not retain food particles. Live steam or soap and hot water may be used for cleaning. Belting is available in endless form or supplied with any of a choice of metal fasteners. Made in 2, 3, and 4 ply thicknesses and in widths up to 48″.

(Style ROH grease-resistant belting is made by Victor Balata & Textile Co., Dept. FP, 53 Park Place, New York 17, N. Y. . . . or for more information check FP 3450 on handy form opposite last page.)

REDUCE FORK TRUCK MAINTENANCE COSTS!



Up to 30% or more with

an LP Gas-operated

LAMSON MOBILIFT ®

The low maintenance costs of LPG fuel . . . proven in other industries . . . can now be enjoyed by fork lift truck users.

The economical operation, long life and versatility of Mobilift is further increased by this alternate fuel system.

THESE MOBILIFT FEATURES ASSURE YOU OF TOP ECONOMY AND EFFICIENCY: A high free lift at standard costs makes stacking easier and faster. All Mobilift trucks are easily accessible to driver position. No cramped quarters. "Every-side" visibility assures smoother, safer operation. Lev-R-Matic direction controls provide instant fingertip operation . . . eliminate gear shifting. Mobil-Matic transmission assembly delivers power smoothly . . . adds years to the life of engine, transmission and drive axle. All engine parts are within easy reach.

Mobilift trucks . . . "stand-up" and "sit-down" . . . range up to 4000 lbs. in capacity. Discover how LP Gas-operated Lamson Mobilift trucks can cut your handling costs and time.

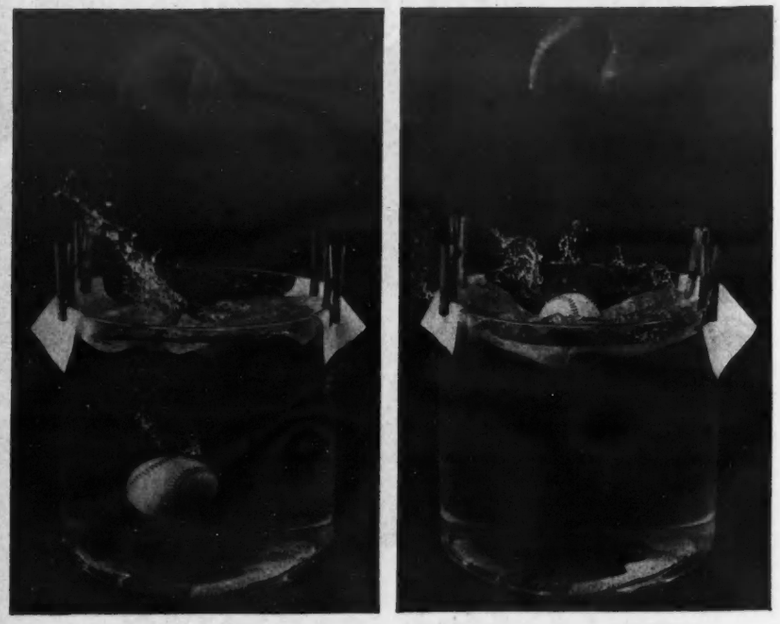
MAIL THIS COUPON TODAY

LAMSON
MOBILIFT
MOBILIFT CORP.
Home Office
Portland, Ore.
Offices in principal cities

Lamson Mobilift Corporation
5409 Lamson Street, Syracuse 1, N. Y.
Please send me complete information on ____ Mobilift "sit-down" trucks ____ on Mobilift "stand-up" trucks, on ____ all Mobilift trucks.
NAME_____TITLE_____
COMPANY_____
ADDRESS_____
CITY_____ZONE____STATE_____

When inquiring check FP 3451 opposite last page

Which paper is Patapar?



When it's WET-STRENGTH *you want*— PATAPAR *has it!*

No matter how you test Patapar Vegetable Parchment–in a water tank with a baseball, or for some specific application – it will come through with flying colors. *Patapar's wet-strength is sure and permanent.*

Resists grease, too

Patapar's high wet-strength, plus the fact that it resists penetration of grease, fats and oils may be the economical solution to some problem in your business.

As a packaging material, Patapar is the proven protective wrapper for products like butter, poultry, margarine, ham, sausage, cheese, confectionery, ice cream, putty, oiled machine parts.

In other fields, Patapar has won praise as a release liner for tacky substances, as a translucent master sheet for direct print copy machines, as a dialyzing membrane, as a release backing for polyester film, and in hospitals for wrapping articles to be sterilized in live steam.

MANY DIFFERENT TYPES – Patapar is produced in hundreds of different types for a wide variety of applications. It is available in sheets or rolls – plain or colorfully printed.

Tell us the application you have in mind, and we'll send information and samples of the type of Patapar we recommend.

Protected by Patapar Vegetable Parchment

Look for this Keymark on Patapar food wrappers.

Write today.

Patapar®
Vegetable Parchment
HI-WET-STRENGTH • GREASE-RESISTING

OTHER PATERSON PRODUCTS
*PATAX wetted paper
*DURAPAX interlaminated cellulose
*PATERSON absorbent paper
*PARCHKLIN art parchment

PATERSON PARCHMENT PAPER COMPANY
Bristol, Pennsylvania
Sales Offices: New York, Chicago
West Coast Plant: Sunnyvale, California

HEADQUARTERS FOR VEGETABLE PARCHMENT SINCE 1885

When inquiring check FP 3452 opposite last page

vacuum packs, seals packages of different sizes, shapes —interchangeably

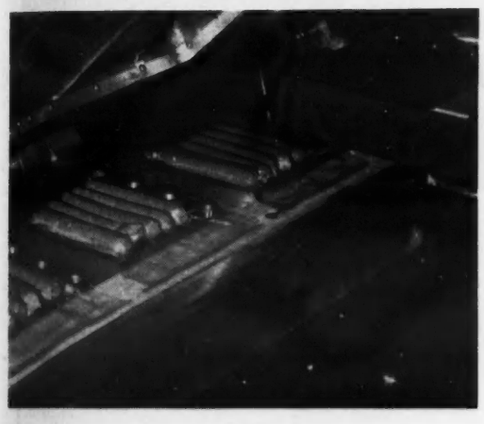
Products in flexible bags placed in chambers— entire chamber is vacuumized

Flat or chunk-shaped products can be vacuum-packed interchangeably, or even simultaneously, in flexible films on machines used by the Variety Sausage Co. of San Francisco. The products—sausage varieties, weiners, luncheon meats—are first placed in conventional flexible film packages. The vacuum-pack machine will accommodate four packages at once.

Operator places each package in bottom chamber (see photo), closes top. Air is then pumped from the entire chamber, not just the package. Machine then heat-seals the package before the chamber automatically opens. Two machines are designed to work in pairs—as one is being filled the other is vacuumizing and sealing four packages. The vacuum-sealing

Vacuumizing-sealing machines are run in pairs at Variety Sausage Co., San Francisco. Operator places four bags in one machine while other is completing vacuum-sealing cycle

A variety of sizes and shapes can be handled in machine, as shown here with sliced ham and weiners



cycle takes about six to ten seconds.

Chambers are designed to handle a variety of shapes and sizes in the "pre-package" range. The operator, with a single sweep of her hand, can remove the sealed packages onto the take-away conveyor.

Pressing two buttons, located at hip level, is necessary to operate the machine, so that the operator cannot accidentally press the starting button while her hand is in the chamber. A 5 hp motor operates the air pump.

(Vac-U-Pak machine is distributed by J. A. Jenks Co., Dept. FP, 224 Commercial St., San Francisco 11, Calif. . . . or for more information check FP 3453 on handy form opposite last page.)

NEXT MONTH

Franklin Candy packages in Saran film — sales have increased 20% each month for two years with this packaging material.

AUTHENTICATED · CASE HISTORY · From the Current Files of Hoerner Boxes, Inc.

Re: Vaughan & Bushnell Manufacturing Company

PACKAGING COSTS REDUCED WAREHOUSE SPACE SAVED*

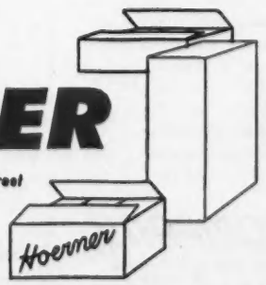
The Vaughan & Bushnell Mfg. Co. of Bushnell, Illinois manufactures mechanics hand tools. For more than 85 years they have been making these tools of the finest quality steel available. Today, Vaughan hammers are known the world over as "the best you can get."

Vaughan & Bushnell insists on quality in packaging, too. And for the past 5 years the Company has worked closely with Hoerner Packaging Engineers to give its products maximum protection in shipment at minimum cost. The result has been a savings in packaging materials costs through efficient package design. And, warehouse space has been saved through pin-point delivery of boxes dove-tailed with production requirements.

*The Hoerner Packaging Engineer responsible: Franklin Calhoun

HOW A HOERNER PACKAGING ENGINEER CAN HELP YOU!

If your company packages things, whatever they are, why not ask us to have a Hoerner Packaging Engineer come in and make an objective study of your packaging operations. It won't cost you a cent or obligate you in any way. It can mean an increased margin of profit through savings in labor and material costs, prevention of shipping losses. Just write to one of the Hoerner plants listed below.



SALES OFFICES: 209 S. LaSalle St., Chicago 4
50 E. 42nd St., New York 17
328 Park Avenue, Urbana, Ohio

HOERNER BOXES, INC.

GENERAL OFFICE: 600 Morgan Street
Keokuk, Iowa

PLANTS—Keokuk, Des Moines and Ottumwa, Iowa; Sand Springs, Oklahoma; Minneapolis, Minnesota; Fort Worth, Texas; Sioux Falls, South Dakota; Fort Smith and Little Rock, Arkansas; Mexico City, Mexico

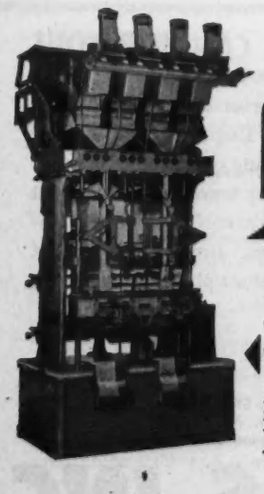
Packaging Engineers Designers and manufacturers of corrugated boxes.

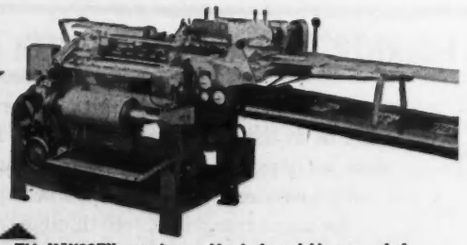
When inquiring check FP 3454 opposite last page

● Your Distributors, your Dealers, your Customers all prefer products that are better protected, more eye-appealing, easier to handle.

● Hayssen packaging gives you all this and more, at less cost . . . neater, tighter, securely sealed product protection everyone goes for.

● Hayssen uses more accurate Electronic control, completely automatic operation, fewer moving parts to wear out—get out of adjustment, heavy-duty construction for years of trouble-free packaging production.





This HAYSSEN wrapping machine is dependable, economical
Any shape, any size, neatly, tightly, easily wrapped. So simple to adjust, the operator does it—no expensive mechanics needed.

The New HAYSSEN "COMPAK" is Complete Packaging
One machine forms, fills and seals . . . any product: Solid, liquid, semi-liquid or powder. Heavy-duty Scale Feed, improved Volumetric, Auger or Pump Feeds.

Let our packaging engineers help you with your packaging problems . . . WRITE US TODAY for further information.

Hayssen MFG. COMPANY
Since 1910, Manufacturers exclusively of automatic wrapping and packaging machines.
Dept. FP-9, SHEBOYGAN, WISCONSIN
Atlanta • Boston • Chicago • Dallas • Denver • Detroit • Los Angeles • Minneapolis
New York • Philadelphia • St. Louis • San Francisco • Seattle • Montreal • Toronto

When inquiring check FP 3455 opposite last page

packaging

Offer aluminum foil label kit, with samples, technical manual

Aluminum foil heat-seal label kit contains technical manual on use of these labels, and samples of various labels in the two types of stock made. One of these is instant type (applied immediately upon heating); the other a delayed kind, which will remain tacky for hours after being heated.

Foil label kit is available from the Laminating Division, Cochran Foil Co., Dept. FP, 500 E. Main St., Louisville 2, Ky. Specify FP 3456 opp. last page.

Tells how to use Saran for pre-wrapping meats

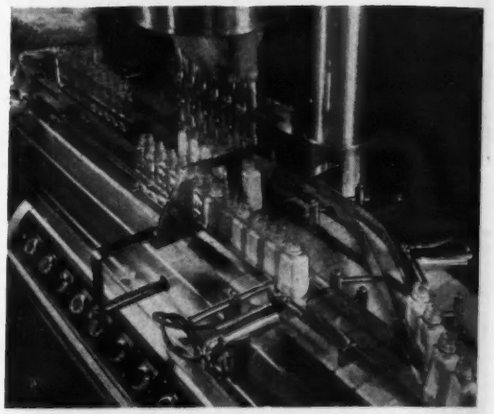
Sixteen-page booklet describes use of Saran film for pre-wrapping meats. Includes descriptions of various automatic and semi-automatic wrapping machines (including names of manufacturer), plus photo-illustrated instructions for hand wrapping.

Booklet on Saran for pre-wrapping meats is issued by Dow Chemical Co., Dept. FP, Midland, Mich. When inquiring specify FP 3457 opp. last page.

"Of course, as a new man you won't expect one of the plusher sales territories."

INCREASE PRODUCTION WITH THE FILLER THAT HAS MORE OF EVERYTHING YOU NEED...

INCLUDING SPEED!



Speed, accuracy, versatility, ease of maintenance . . . no filler on the market today has as much of these qualities in combination as Mateer. For instance—

SPEED
Mateer Electric Fillers handle up to 240 fills per minute . . . and where powders are concerned are *twice as fast as any other auger filler!*

ACCURACY
Mateer precision engineering results in an accuracy rating of 99.7%. *That kind of efficiency saves money!*

VERSATILITY
Mateer Fillers handle all kinds of material . . . you can change from one to another in minutes. No similar filler is as versatile.

CLEANLINESS
Mateer Fillers handle sterile materials, and under the most rigid specifications. All standard parts are approved for aseptic filling.

MATEER MODELS INCLUDING MANUAL, SEMI-AUTOMATIC AND FULLY AUTOMATIC ARE CUSTOM ENGINEERED TO YOUR SPECIFIC NEED

Send for our latest brochure—How Modern is Your Filling Equipment? Write Dept. F.

G. DIEHL MATEER CO.
Lincoln Highway, Strafford, Wayne, Pa.

When inquiring check FP 3458 opposite last page

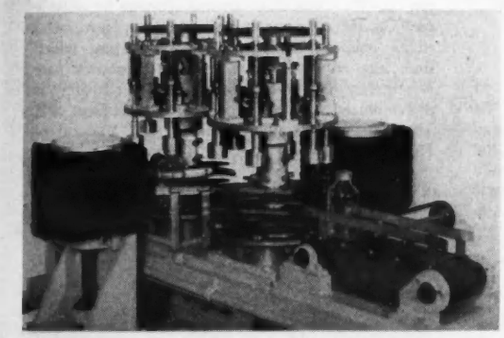
Cleans bottles on outside after they have been filled and sealed

Unit removes impurities left by spillage or cleaning-water film

Uses: Intended for use in areas where water leaves a film on bottles during preliminary cleaning, unit could be used to cleanse bottles of impurities due to spillage, etc.

Features: Machine removes impurities from outside of bottles and prepares them for packing. It is adjustable to clean bottles of different heights. Carrying discs are interchangeable to take bottles of larger or smaller diameters.

Description: In operation, cleaning machine feeds bottles along a flat belt conveyor. Two circular tables then rotate bottles past a dry steam spray and against two long trim nylon cylinder brushes. Long trim cleans necks of bottles as well as large outside diameters.



Dry steam spray and nylon brushes clean outsides of bottles (view with hood removed)

Entire unit is hooded and is connected with an air exhaust system that keeps condensation from steam to a minimum. Machine speed can be adjusted to match production requirements.

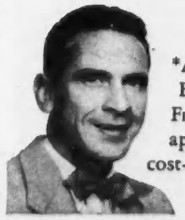
(Bottle cleaning machine is a development of Machine Div., Fuller Brush Co., Dept. FP, 3641 Main St., Hartford 2, Conn. . . . or for more information check FP 3459 on handy form opposite last page.)

Displays industrial tape samples, describes uses, properties

Sixteen actual samples are included in four-page catalog on industrial pressure sensitive tapes. Composition and uses of each are described.

"Polyken Industrial Tape Catalog" is issued by Polyken Products, The Kendall Co., Dept. FP, 222 West Adams St., Chicago 6, Ill. When inquiring specify FP 3460 opposite last page.

AIM* for production-line packaging with Acme Steel Wire Stitching ideas



*Acme Idea Man Bill Conrad, San Francisco, helped apply this unique cost-saving method.

ask your *Acme Idea Man to help solve your problems

Now they're packing lettuce in corrugated cartons as it is picked in the field. Since space on the mobile packing rig is limited, boxes are stacked flat, assembled as needed. The A & R Lettuce Co. of Salinas, California, found wire stitching the most effective way to assemble boxes securely. (Idea No. 465.) With a gasoline powered Acme Steel Silverstitcher, boxes are set up and stitched as rapidly as they can be filled . . . then trucked to vacuum cooling plants.

Field packing saves time, money, eliminates unnecessary handling. And the strong, secure wire stitching process assures safe arrival. Grocers everywhere are pleased with this modern method of packing. Cartons are cleaner and easier to handle . . . and the product stays fresher longer.

These facts again point out the wealth of ideas with which your *Acme Idea Man is equipped to help you, in factory or field . . . so that you may ship your products safely and quickly—for less cost. You can reach him at the nearest Acme Steel office. Or, if you prefer, write for complete literature on Acme Steel Wire Stitching equipment—care of Dept. NN-95

ACME STEEL PRODUCTS DIVISION

ACME STEEL COMPANY

2840 ARCHER AVENUE, CHICAGO 8, ILLINOIS • ACME STEEL CO. OF CANADA, LTD., TORONTO

ACME STEEL

When inquiring check FP 3461 opposite last page

TEXTILE PRODUCTS

LIKE MAGIC-

CANDIES

THE *Automatic* CAMPBELL WRAPPER PACKAGES PRODUCTS LIKE THESE WITH AMAZING SPEED...NEW LOW COSTS!

Yes, *100 to 300 units per minute!* Plus all the important operating features you want in modern package wrapping — Automatic, continuous feed and delivery with all rotary motion — "Float" wrapping of regular or irregular shaped products *without* crush or damage, whether hard, soft, firm or brittle — Savings galore with one person operation, who, in many cases tends several machines at the same time — 25 to 50% *less* material cost because no trays or stiffeners are required, *unless desired* — Positive heat, glue or crimp sealing with all types of modern wrap materials — And, accurate registration of pre-printed or applied labels. Get full details today . . . there's a model to fit your every need.

MEDICAL DROPPERS

BAKERY PRODUCTS

CITRUS FRUIT AND VEGETABLES

ICE CREAM NOVELTIES

CAMERA FILM

BACON AND MEATS

PAPER SPECIALTIES

WHAT'S YOUR PROBLEM?

Send us a sample product—our packaging engineers will gladly advise you how the Campbell Wrapper can fit your needs. There's no obligation, of course.

Campbell WRAPPER

Manufacturers of Aniline and Glassine Presses, Folders, Interfolders, Laminators, Waxers, Embossers, Slitters, Sheeters, Roll Winders, Packaging Machines, Creepers and Tissue Converting Units.

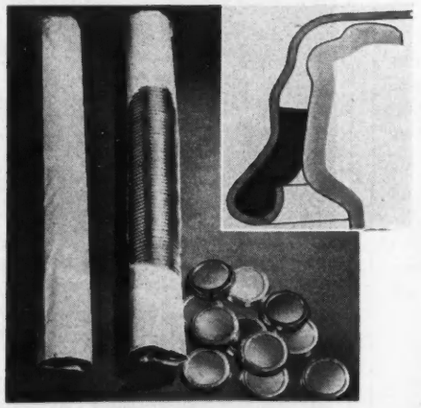
New! Completely revised free booklet—Write for your copy.

New York office: 55 West 42nd St.

When inquiring check FP 3462 opposite last page

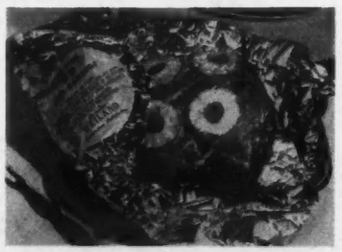
Package NEWS-OF-THE-MONTH

Tips and pointers . . . what's new in products and package design . . . and "where-to-go" for more information

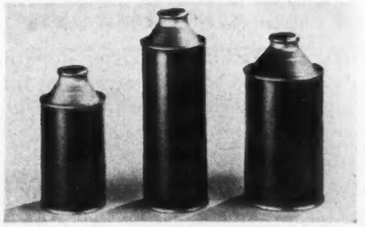


Improved press-on vacuum closure is easy to open, reseals air-tight, and can be applied by rotary sealing machine at speeds of more than 700 jars per minute. The closure seats on the glass finish without forceable contact of the inside coating with the top of the glass (see drawing), thus preventing fracture of the coating. Housewife opens it by using key-type opener.

Caps are nested in a paper tube (see photo), and are used in a stack feed, rather than jumble pack, which saves an estimated 43% in warehouse space. Recessed cap panel facilitates shelf-stacking for better display at the retail level. Vapak closure is development of Owens-Illinois Glass Co., Dept. FP, 14th and Adam St., Toledo 1, Ohio . . . or check FP 3463.



Who's on first? Item in July Package News mentioned ham in aluminum foil. Now we have word that two Pennsylvania firms have been similarly packaging hams. These are the Weiland Packing Co. of Phoenixville, Pa., whose ham and package are shown here, and Abergast and Bastian, of Easton, Pa. Wraps for both of these packers are printed by Diaphane Corp., Dept. FP, 1934 Arch St., Philadelphia, Pa., with foil by Reynolds Metals Co., Richmond, Va.



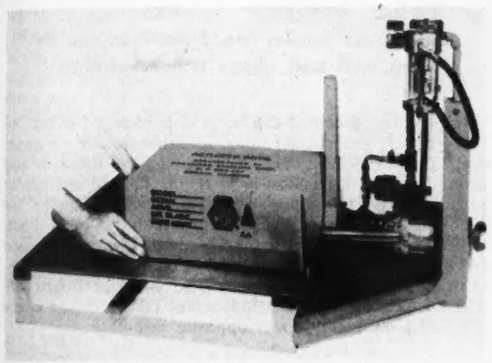
Slender 9-oz cap-top soft drink can may be run through present bottling equipment with minimum modifications. Diameter of the 202 x 503 can is same as bottles, making no adjustment necessary for use in vending machines or in 6-can carriers. New size can incorporates an outside curl on top of cone, eliminating any raw metal edges inside, plus a spray wax coating which lines the entire interior. New can, shown here between regular 6-oz (left) and 12-oz sizes, is development of Continental Can Co., Dept. FP, 100 E. 42nd St., New York 17, N. Y. . . . or check FP 3464.

Multiple-package holds four ice cream cups, is designed to stimulate sales in self-service cabinets. Two different styles, either 4-in-line cartons or 2 x 2 stack cartons are available in two-color stock imprint designs. Cartons may be imprinted with ice cream manufacturer's name, address, and flavor. Multiple-unit carton for ice cream cups is product of Dixie Cup Co., Dept. FP, Easton, Pa. . . . or check FP 3465.

Zip-tape in gold opens the outer wrap of this bread loaf, leaving two individually wrapped inner half-loaves, to stay fresh longer. Gold is used freely on the package re-design to tie in with advertising campaign of the E. H. Koester Bakery Co., Baltimore, to "Strike Gold" and "Join the Gold Rush". Tape, a lamination of two layers of cellophane, with color carried in the adhesive between, is product of The Dobeckmun Co., Dept. FP, P.O. Box 6417, Cleveland 1, Ohio . . . or check FP 3466.

Just press, carton automatically stapled without solenoid

Available in either floor or bench models, air-operated, retractile anvil stapler requires no solenoid, relay, or foot switch. Carton is merely pressed against stapling head, and staple is automatically driven and clenched. Staples can be driven vertically

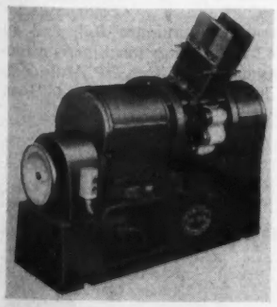


Stapler has capacity of over 200 staples/min.

or horizontally at various heights with easy adjustment. Staple heights range from ¼ to 8⅝" above table level. Unit operates from 50 to 60 psi air, has capacity of over 200 staples/min.

(Model TAP stapler is manufactured by Container Stapling Corp., Dept. FP, 308 N. Park Ave., P.O. Box 247, Herrin, Ill. Check FP 3467 opp. last page.)

Automatic round can flanger handles over 500 cans/min

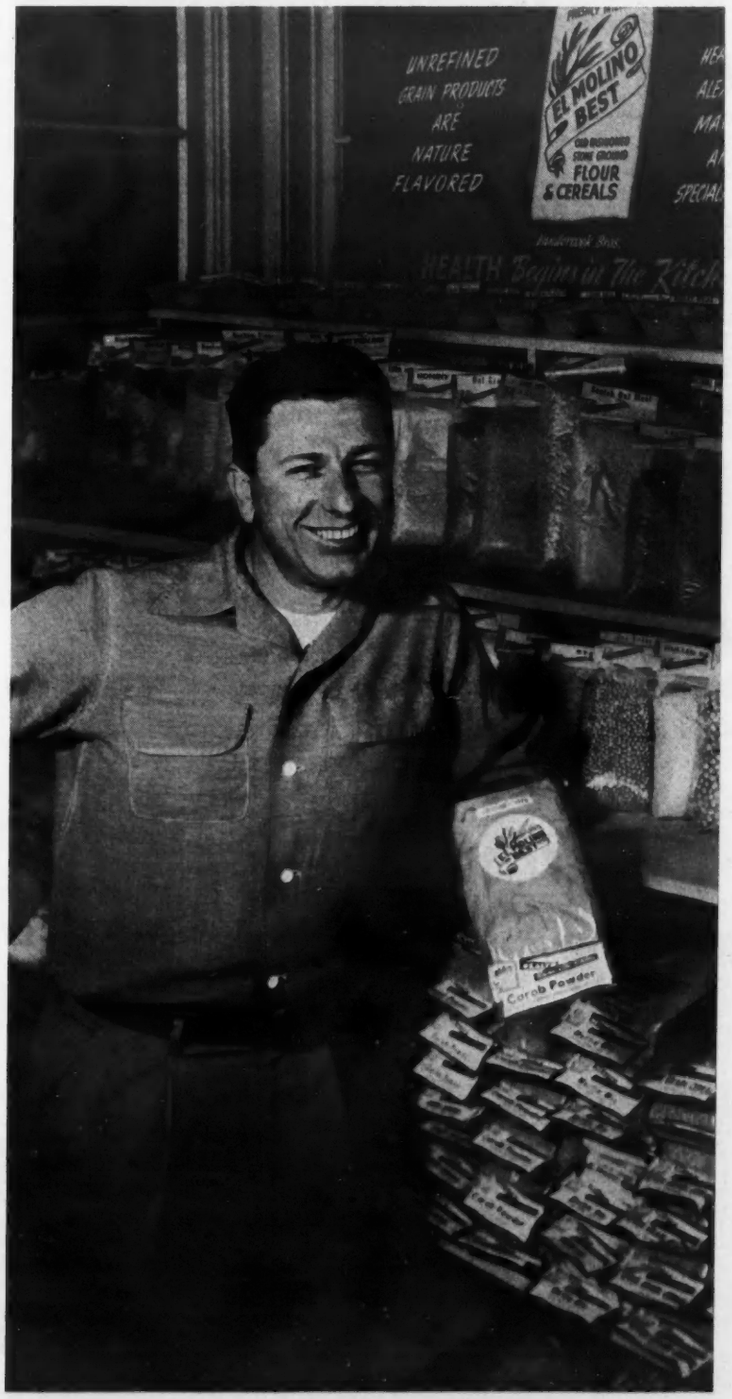


Easy to adjust to can size

Built for sustained, high speed automatic operation, round can flanger is 8-station rotary double end type. Unit attains speeds of over 500 cans per minute, handles can sizes from 2" to 4-3/16" dia and 2" to 8" high, with easy adjustment. It is equipped with long, individually adjustable cylinder slides, providing accurate can alignment and positive flanging action. Slides also allow use of small diameter turrets, which operate more smoothly at higher speeds. Turrets are also adjustable, permitting steady, centered can flow.

(No. 1315 round can flanger is produced by E. W. Bliss Co., Dept. FP, 1004 E. State St., Hastings, Mich. . . . or check FP 3468 opposite last page.)

DEFINITELY it pays to package in film made of BAKELITE Polyethylene



Packaging by **Howard Plastics,** Council Bluffs, Iowa

"problems were completely eliminated"

That's the overall picture of the job that packaging in film made of BAKELITE Brand Polyethylene does for El Molino Mills, Alhambra, Calif. The Vandercook brothers, owners and partners, divide their success story into two parts—*results*, and *reasons*.

The RESULTS:

- "Our sales have increased 10 times since we made the change to polyethylene.
- "Sales of muffin mix increased 300% the first year.
- "There have been savings right down the line . . . to us, to the retailer and consumer. While costs to consumers are steadily rising in nearly all items on the market today, our products are selling for less—all because of polyethylene bags."

The REASONS:

- "Polyethylene bags will stand up under the roughest treatment.
- "Our products are highly perishable. Today, in easily sealed polyethylene bags, oxidation and rancidity don't take place . . . and they ship for any distance without infestation.
- "Not only does polyethylene increase the shelf life of our product, but it makes it look so much better. Retail outlets are exceedingly happy."

There are many sound reasons why packaging in film made of BAKELITE Polyethylene can bring the same, and even more advantages to the food products you market. Call your packaging supplier.

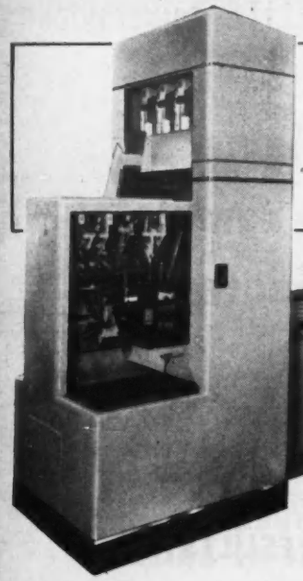
SPECIFY FILM MADE OF

BAKELITE BRAND Polyethylene Plastic

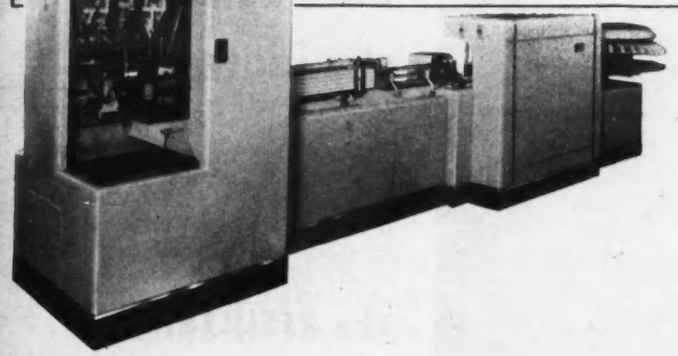
BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

When inquiring check FP 3469 opposite last page



Cut Costs with SEALTITE



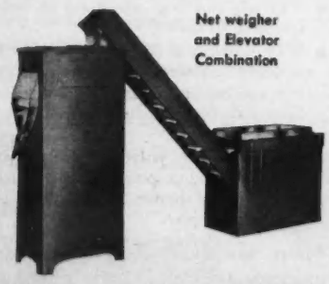
- Delivers a well settled, nicely squared bag at top, bottom and sides
- Pre-scored, double fold, uniformly glued seal keeps product in and dirt out
- Uses any standard make of gusseted bag — no royalties
- Seal readily opened, yet tamper-proof
- Seals 30 to 50 bags per minute
- Users report costs reduced up to $500.00 per month per machine

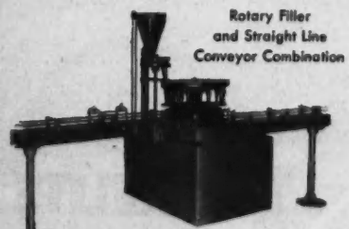
Write for complete information

CONSOLIDATED PACKAGING MACHINERY CORP.

BUFFALO 13, N. Y.

When inquiring check FP 3470 opposite last page





There's a WHIZ-PACKER
For Every Dry Product Packaging Need

—automatic, semi-automatic, net weighing, volumetric package fillers, conveyors, elevating equipment, accessories

BULLETINS ARE AVAILABLE GIVING COMPLETE DETAILS ON WHIZ-PACKER MODELS.

Special filling needs can be met by "Tailor-made" units. Your inquiry is invited

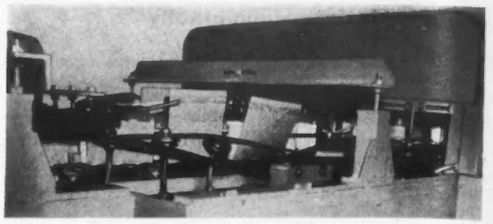
Frazier & Son

20-01 Industrial West, Allwood, Clifton, N. J.

EXCLUSIVE DISTRIBUTORS

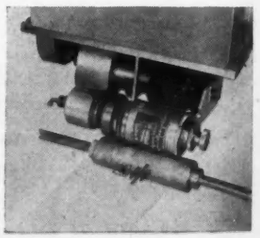
EASTERN STATES Amsco Packaging Machinery, Inc., Long Island City, N. Y.
WESTERN STATES Simplex Machinery, Inc., Oakland, Calif.
MIDWESTERN AND SO. STATES Miller Wrapping & Sealing Machine Co., Chicago, Ill.
EXPORT The Eaton Company, Inc., New York, N. Y.
CANADIAN Phin Sales Company, Toronto, Canada

When inquiring check FP 3471 opposite last page



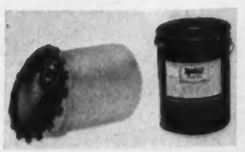
Can-cartoner bundles two, three, four, and six cans, with quick change to new operation

Can-cartoning machine can be quickly changed to bundle two-, three-, and six-can units, in either double or single line. Carton blanks are formed tightly upward and around cans to position-lock them, then glued under pressure. The top-gluing can also provide handles for the package at same time. Cartons have open ends, saving material cost. Machine can run at average speed of 83 six-can packs (498 can)/minute. Gar-Pack can-cartoning machine is made by The Gardner Board and Carton Co., Dept. FP, Middletown, Ohio . . . or check FP 3472 on handy form opposite last page.



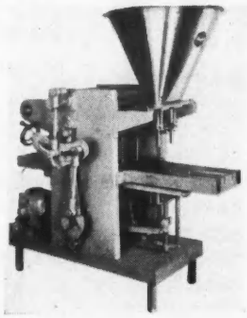
Imprints on all types of films, attaches to any wrapping machine

Imprinting device attaches to all makes of wrapping machines for printing code-dates, varieties, contents descriptions, and other identification on package wraps. Solenoid-operated machine prints in pre-selected locations on the film, in either continuous intermittent operation. Flexographic system uses fast-drying inks of almost any color on cellophane, polyethylene, Pliofilm, aluminum foil, and all types of paper. Model 742 Rolaprinter machine is manufactured by Adolph Gottscho, Inc., Dept. FP, Hillside 5, N.J. . . . or for more information check FP 3473 on handy form opposite last page.



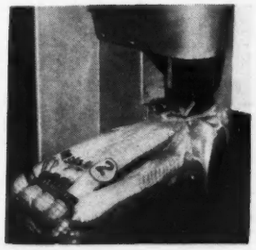
Flexible liner has increased resistance to shipping fracture

Film that is 33% thicker than those ordinarily specified is used as liner for 5-gal metal drums. Liner is form-fitting to eliminate pleats and folds, which fracture with shipping vibrations. Flare top of film locks into rim when drum top is put on to prevent slipping and friction, which would cause failure. Liner, which is .006" polyethylene film supplied by Visking Corp., Plastics Div., Terre Haute, Ind., will soon be available for 10, 30, and 55-gal sizes. Jasperdrum liner (patents applied for) is development of Jasper Bag Co., Dept. FP, 1220 W. 6th St., Cleveland, Ohio . . . or check FP 3474 on handy form opposite last page.



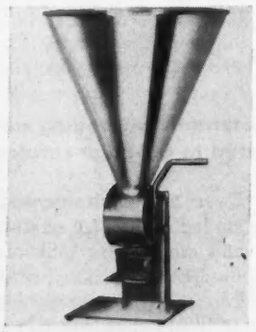
Fills viscous products ranging from near-zero to 1 gallon

Heavy duty filling machine features quick change-over for quantity of fill and container size without repositioning pistons or other parts. It has a dripless bottom fill arrangement, and special hoppers for agitation, for filling such viscous products as mayonnaise, Sundae toppings, peanut butter, soaps, and viscous abrasive materials. "No container-no fill" unit, removable feed bars, and stainless steel table plates are furnished. One and two line models are available. Range of fill is from 0 to 1 gallon. Type 19S filling machine is product of Hope Machine Co., Dept. FP, 9400 State Road, Philadelphia 14, Pa. . . . or check FP 3475 on handy form opposite last page.



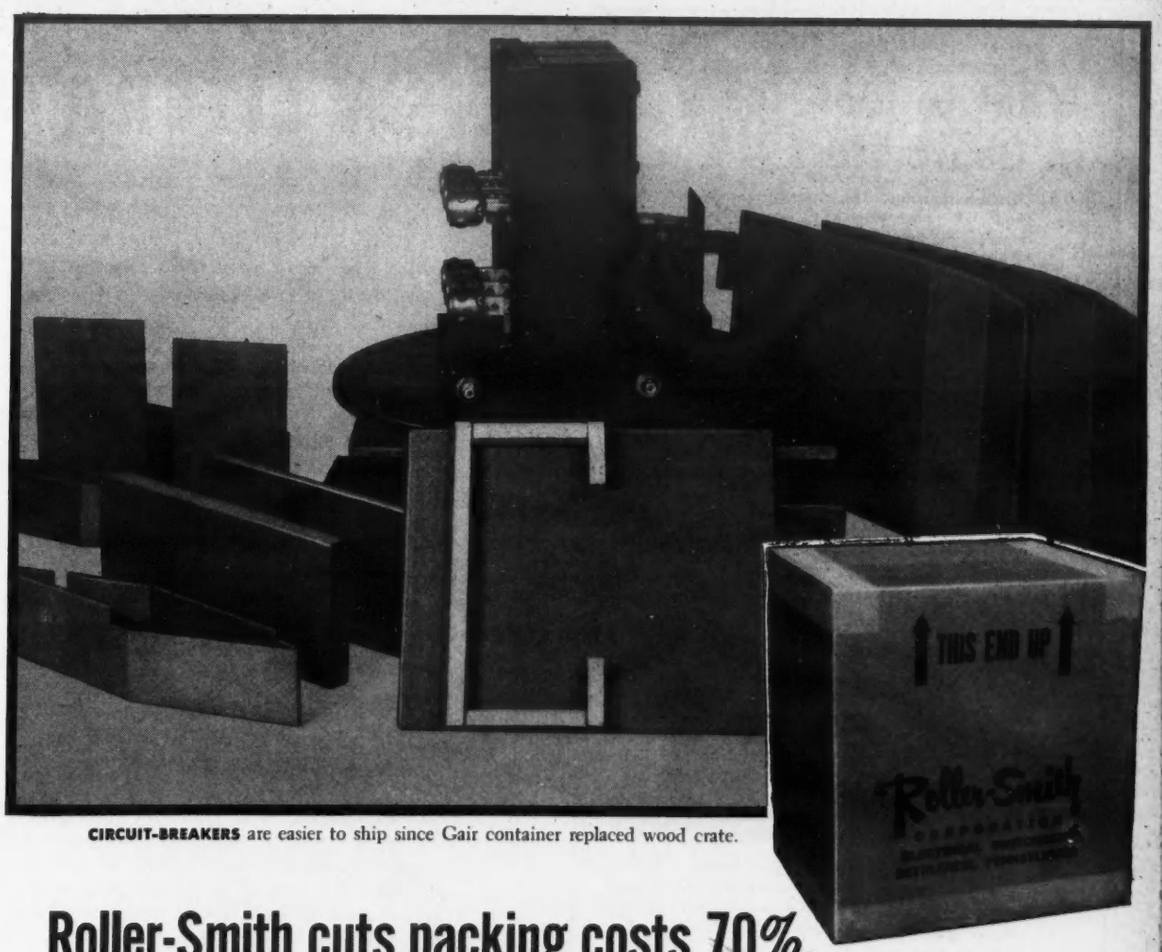
Applies tie closures automatically

Machine automatically cuts off proper length of tying material (vinyl-covered wire), fastens it around neck of flexible film bag for a tight, neat seal. Bags ranging in capacity from ½ to 25 lb are tie-closed at rates up to 40/min. The plastic-covered ties are available in colors, can be imprinted to order. They are easy to untie and can be used to re-close the bag by the housewife. Plas-Tie Matic bag closing machine is development of Plas-Ties Co., Dept. FP, P.O. Box 27, Santa Ana, Calif. . . or check FP 3476 on handy form opposite last page.



Fills two cottage cheese cups for each turn of handle

Double-action piston fills one container on every 180° turn at rate of 30 cartons of cottage cheese /min. Any quantity from 4 to 16 oz can be filled by adjusting a screw. Opening 3″ in diameter permits passage of large-curd cottage cheese with minimum breakdown. Adjustments are provided for different cup heights and diameters. Hopper capacity is 12½ gallons. Hand-operated filler, Model 277, is 37″ high, with 12 x 12″ base . . . a product of Anderson Bros. Mfg. Co., Dept. FP, 1907 Kishwaukee St., Rockford, Ill. . . . for more information check FP 3477 on handy form opposite last page.



CIRCUIT-BREAKERS are easier to ship since Gair container replaced wood crate.

Roller-Smith cuts packing costs 70%, shipping weight 27½% with new Gair Container

These percentages are based on actual time studies run by Roller-Smith Corporation, Bethlehem, Pa., on the packing of their heavy circuit breaker.

Cutting lumber, assembling a wooden crate and packing used to take 57 minutes. With the new Gair container the job takes only 17 minutes — a 70% reduction. Material costs also dropped 9¾%, and net shipping weight of the container plummeted 27½%.

What's more, the Gair container has chalked up an excellent record for protection in transit, as well as guarding against loss of accessories often included in shipments. Extra dividends include:

- *advertising* value of Gair's printing
- *dust protection* of Gair's sealed construction
- *elimination of safety hazards* in handling wood
- *reduction* of required storage space

Maybe there's some way Gair could improve your product's shipping container. How about calling your nearest Gair container plant and finding out?

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Jackson, Miss. • Los Angeles, Cal. • Martinsville, Va. • New Orleans, La. • No. Tonawanda, N.Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N.Y. • Tetorboro, N.J.

SINCE 1864 GAIR

GAIR SHIPPING CONTAINERS • FOLDING CARTONS
PAPERBOARD • KRAFT BAGS AND WRAPPINGS

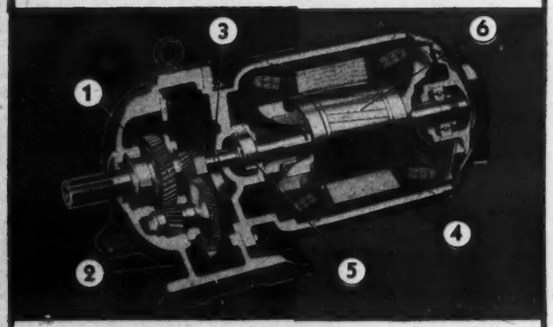
ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N.Y. SC.5.8

When inquiring check FP 3478 opposite last page

to FOOD ENGINEERS, Howell suggests

What to look for in Gearmotors

1. **Lifetime gearing.** The wear-resistance of gears depends, in good measure, upon their hardness. Howell's Duti-Rated Lifetime gears have a Rockwell hardness (52-60) substantially higher than the industry average.
2. **Compact, permanently aligned case.** Machine designers like the space-saving compactness of the Howell gear case. Pyramidal mounting puts support where it's needed — avoids the shaft misalignment possible when motor and gears have separate supports.
3. **Rugged, solid-shank pinion.** Howell's pinion design, with threaded coupling and self-broaching splines, makes a failure-proof shaft connection between motor and gears. No troublesome keys.



4. **NEMA—standard motors** give machine builders and users complete motor interchangeability, help them reduce inventories and simplify purchasing. Howell gearmotors give you this valuable feature — *with the new re-rated motors included!*
5. **Fully-protected bearings** insure longer motor life. Dirt can't enter Howell's double-shielded bearings either from inside or outside the motor, because they are seated in the end-plate cavities by dust-tight inner caps.
6. **Copper-clad rotors** mean better heat conductivity, stability at high temperatures and, as opposed to die-cast rotors, greater design flexibility to meet your particular motor requirements. *All* Howell motors have them.

Gearmotors Cut Costs. Actual savings achieved by Howell gearmotors over separate motor-plus-reducer-plus-coupling drives are available for your study. Just request "Gearmotor Savings Table" when you write for catalog.

WRITE FOR BULLETIN GM-1

HOWELL MOTORS

When inquiring check FP 3479 opposite last page

NEW LITERATURE

Reviews of books and industrial bulletins describing equipment, supplies, services

Compiles special federal food and drug laws in one volume

Full texts of the various special food and drug laws are presented in 1334-page book. These laws are in addition to the basic laws, and are about 20 in number. Those applying to food processing include the Meat Inspection Act, Packers and Stockyards Act, U.S. Grain Standards Act, Filled Milk Act, Oleomargarine Act, and others.

"Special Federal Food and Drug Laws", compiled by Christopher and Dunn, can be obtained by remitting $26.50 direct to Commerce Clearing House, Inc., Dept. FP, 214 N. Michigan Ave., Chicago 1, Ill.

Extensive data on detergents compiled, explained in text

Supervisors of clean-up operations are principal targets of book on industrial detergents. Book covers compositions of detergents for specific applications, how detergents are used, factors which govern choice and use for particular applications, problems that might arise.

Chapter covering compositions of various detergents is quite extensive. Separate chapter treatment is given to particular industries—including food and beverage, dairy, and general maintenance cleaning.

"Industrial Detergency", 340 pages, by W. W. Niven, can be obtained by remitting $8.75 direct to Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.

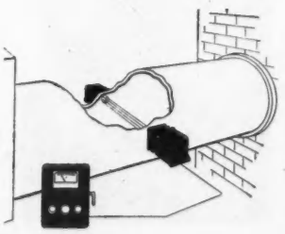
Organic chemistry textbook avoids 'encyclopedia' approach; useful as refresher for technologists

Plan of this text on organic chemistry is different than most in that main emphasis is placed on development of structures of various types of compounds on basis of electron theory. It aims at giving broad concept of subject rather than being an encyclopedia of names and reactions.

Book is divided into four main sections: atomic structure, molecular structure, classification of compounds, and special topics. The first section is an elementary discussion of such things as dipole movements, covalent compounds, and resonance — for those who are not entirely familiar with these relatively new concepts. Book is well illustrated with over 120 line drawings and photographs.

"Organic Chemistry Simplified", by Rudolph Macy, 611 pages, can be obtained by remitting $12.00 direct to Chemical Publishing Co., Dept. FP, 212 Fifth Ave., New York 10, N.Y.

Many applications described for photoelectric control devices



High-speed counting, inspection and sorting, smoke control, high-temp measurement and control, machinery safeguards, conveyor control are some of uses to which photoelectric control devices can be put. Twenty-page pamphlet describes these applications, also includes specifications, descriptive data, and operational charts for various control units.

"Proved Answers to Successful Automation" is issued by Photoswitch Division, Electronics Corp. of America, Dept. FP, 77 Broadway, Cambridge 42, Mass. When inquiring specify FP 3480 on handy form opposite last page.

Automatic packaging equipment listed in 40-page catalog

Over 275 machines in packaging line are included in 40-page catalog. Gluers, sealers, bottle and can packers, milk casers, labelers, unloaders, unscramblers, case printers and stampers, rinsers are all described. Specifications, speeds, operational details, package-size ranges are mentioned for each type of machine.

Condensed catalog of automatic packaging equipment is issued by Emhart Manufacturing Co., Dept. FP, 333 Homestead Ave., Hartford 2, Conn. When inquiring specify FP 3481 on handy form opposite last page.

Lists organic solvents for food processing and maintenance

Pocket-size, 68-page booklet contains extensive list of organic solvents, of interest to food processors principally in extraction, refrigeration, and general maintenance. Uses and general properties of each solvent discussed; numerical properties are in table form. Toxicity data are also included.

Organic Solvents Booklet is available from Central Solvents & Chemicals Co., Dept. FP, 2540 W. Flournoy St., Chicago 12, Ill. When inquiring specify FP 3482 on handy form opposite last page.

Straightens dented filled cans, all sizes from 211 x 304 to No. 10

Mechanical unit for straightening dented filled cans is described in four-page illustrated bulletin. Machine is operated by foot pedal, requires no special skill. Most solid-pack cans from 211 x 304 to No. 10 can be handled. Booklet includes operating instructions, specifications, and list of products which can and cannot be handled.

Bulletin 1658 can be obtained from Chisholm-Ryder Co., Inc., Dept. FP, 5380 Highland, Niagara Falls, N.Y. When inquiring specify FP 3483 on handy form which is located opposite last page.

Conveyors for shipping, warehousing offered in belt and gravity models

Conveyors in a variety of types: portable stacking, floor-to-floor, belt, gravity roller, and wheel conveyors are described and illustrated in new catalog. Selection includes models especially suited to shipping and storage operations.

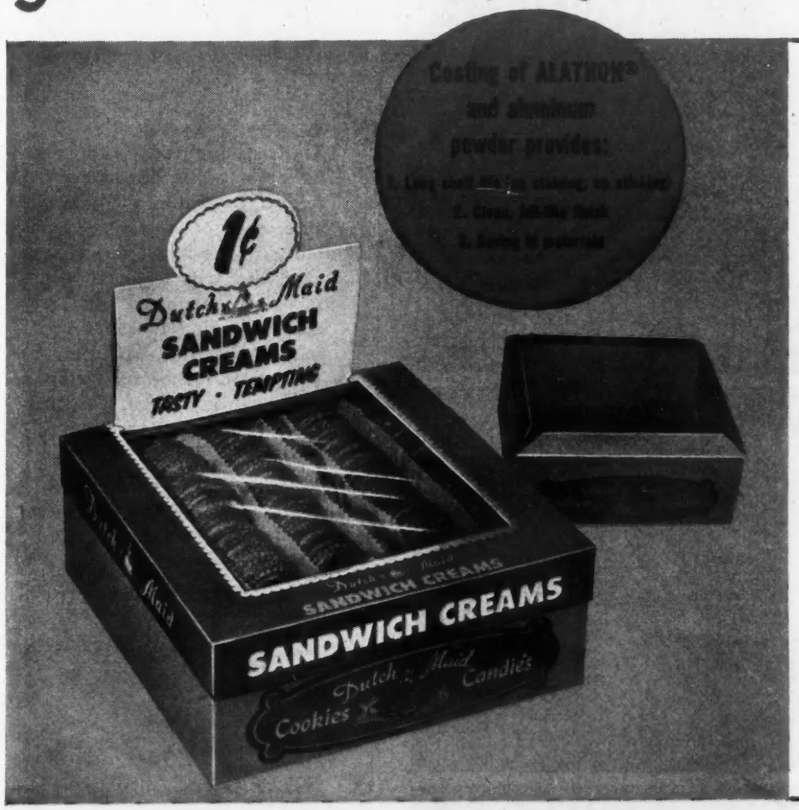
Conveyor catalog is issued by Samuel Olson Mfg. Co., Dept. FP, 2426-36 Bloomingdale Ave., Chicago 47, Ill. When inquiring specify FP 3484 on handy form opposite last page.

Infrared recording spectrophotometer has spectral range of 1.5 to 26 μ

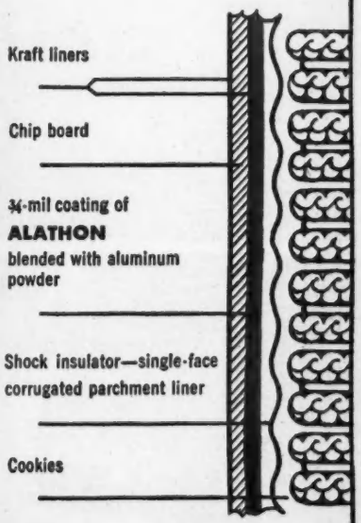
Quantitative or qualitative spectrum analyses are performed by infrared spectrophotometer. Use of four prisms (interchangeable in one minute) give instrument a spectral range of 1.5 to 26 microns. Bulletin describes features of this unit.

Bulletin on infrared spectrophotometer is issued by Baird Associates, Inc., Dept. FP, 33 University Rd., Cambridge, Mass. When inquiring specify FP 3485 on handy form opp. last page.

See how "Alathon" protects chip board-gives better display to bulk cookies!



CROSS SECTION OF COOKIE CADDY



Paperboard coated by J. D. Cahill Co.
"Alathon" blended with aluminum powder by L. A. Dreyfus Co.
Carton designed and produced by Robert Gair Company

Merchandising bulk cookies in retail stores presented a tough packaging problem for the Federal Sweets and Biscuit Company.

The high shortening content of the cookies stained corrugated caddies, so glassine innerliners were used. In addition, a printed overwrap was required for eye appeal.

After considerable testing, the Robert Gair Company of New York designed and produced the more efficient, more economical merchandiser shown above. The secret: a coating of pre-blended "Alathon" polyethylene resin and aluminum powder on the inside of the carton.

By applying a ¾-mil coating of the "Alathon" and aluminum powder blend to the back liner of .040" Kraft-lined chip board, a strong folding carton was developed with a foil-like finish on the interior. This produces a clean, sanitary appearance . . . and long shelf life results because of the non-staining and non-sticking properties of "Alathon." This new board also permits a much better job of printing than the corrugated board and results in a more attractive package without the use of an overwrap.

Unmodified coatings of "Alathon" also offer: strength; transparency; moisture resistance; heat sealability; low-temperature flexibility; chemical resistance; freedom from odor, taste and toxicity.

NEW 36-PAGE BOOKLET
"ALATHON® Polyethylene Resin as a Coating Resin for Flexible Materials" is yours free! Just send the coupon below.

DU PONT
ALATHON®
POLYETHYLENE RESIN
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Which type of package are you interested in?

- ☐ Multi-wall bags
- ☐ Single-ply bags
- ☐ Pouch bags
- ☐ Board cartons
- ☐ Board trays
- ☐ Fiber drums
- ☐ Corrugated boxes
- ☐ Fiberboard containers

E. I. du Pont de Nemours & Co. (Inc.)
Polychemicals Dept. 539, Du Pont Bldg.
Wilmington 98, Delaware

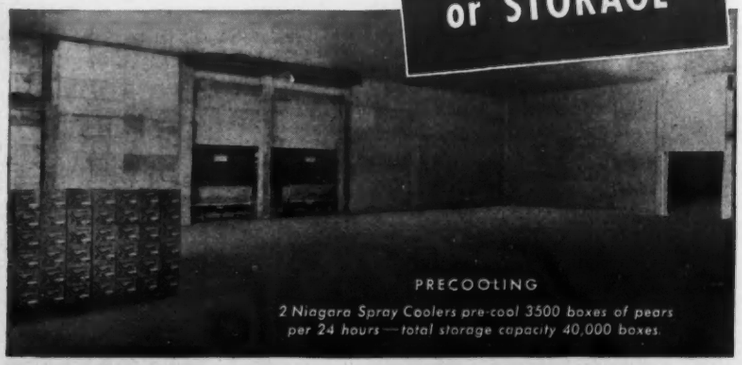
Please send me information on the properties and advantages of "Alathon" polyethylene resin, including new 36-page booklet.

*Name*_____
*Title*_____
*Company*_____
*Address*_____
*City*_____ *State*_____

When inquiring check FP 3486 opposite last page

NIAGARA "No-Frost"

PRECOOLING or FREEZING or STORAGE



PRECOOLING

2 Niagara Spray Coolers pre-cool 3500 boxes of pears per 24 hours—total storage capacity 40,000 boxes.

FOOD FREEZING

Hardening 10,000 gal. of ice cream per day at —30° F.

FROZEN FOOD STORAGE

Room 80 ft. x 135 ft.—Temperature —5° F.

NIAGARA "No-Frost" gives you extra capacity and better operation. It improves quality, especially in foods, where it brings the product to correct temperature faster and holds it without fluctuation. It saves money for you in the cost of power and labor. With Niagara "No-Frost" there is never any "de-frosting" loss of time or temperature rise.

Write for Bulletin 105

NIAGARA BLOWER COMPANY

Dept. FP, 405 Lexington Ave. New York 17, N. Y.

Sales Engineers in Principal Cities of U. S. and Canada

When inquiring check FP 3487 opposite last page

new literature

Tells how to select correct lift truck

Industrial equipment analysis guide and rating table (similar to job and personnel rating) discusses techniques in a selection guide and analysis sheet for lift trucks.

Thirty-six lift truck features are listed for comparison under the following headings: performance, ease of operation, durability, serviceability, and appearance. User self-rates each feature in points determined from general idea rating and from user's job requirements. As many as four trucks can be analyzed and compared on a chart. The analysis guide assists in comparing job requirements with truck features.

Forms 1406 and 1411 are issued by Hyster Co., Dept. FP, 2902 N. E. Clackamas St., Portland 8, Ore. When inquiring specify FP 3488, opposite last page.

Liquid level gages for any purpose

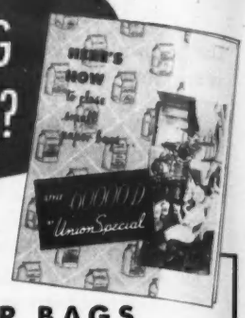
Complete line of liquid level gages for indicating, recording, controlling, and telemetering are described in 26-page catalog. Float-type, pressure-type, differential pressure-type, bubbler-type level gages are all illustrated. Engineering data and installation instructions are included.

Bulletin L701 can be obtained from the Bristol Company, Dept. FP, 143 Bristol Rd., Watertown 20, Conn. When inquiring specify FP 3489 opp. last pg.

Automatically wraps lettuce, capacity — 65 heads/min

High-speed lettuce wrapper produces conforming film wrap with heat seal, at rates up to 65 per minute. Various size heads can be wrapped consecutively by automatic

PACKAGING PROBLEMS?



HERE'S HOW *to close* **SMALL PAPER BAGS**

Send for this interesting, illustrated BULLETIN No. 100 showing how the Union Special *Style 60000 D* bag closing machine can help you solve many packaging problems:

- **FAST**—Speed to match output of standard filling and weighing equipment.
- **NEAT**—Produces an eye-pleasing sales-stimulating package with high merchandising value.
- **ECONOMICAL**—Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.
- **VERSATILE**—Adjustable for a wide range of bag sizes, short or long runs.

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a *better* closing job for you.

"DUBL-TAPE" CLOSURE

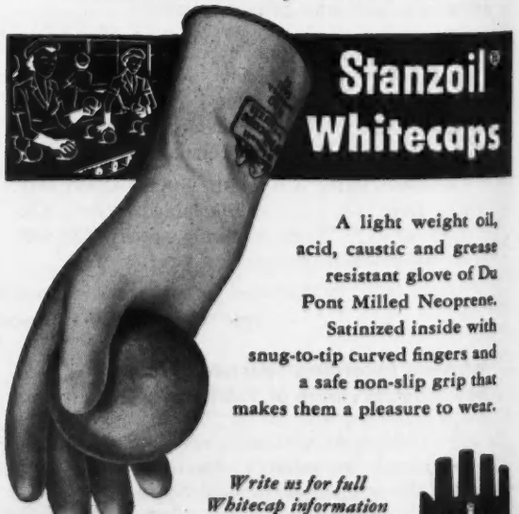
Union Special® MACHINE COMPANY

432 N. Franklin St., Chicago 10, Illinois

When inquiring check FP 3490 opposite last page

Increase Worker Efficiency

. . . Maintain Sanitary Conditions with



A light weight oil, acid, caustic and grease resistant glove of Du Pont Milled Neoprene. Satinized inside with snug-to-tip curved fingers and a safe non-slip grip that makes them a pleasure to wear.

Write us for full Whitecap information

the PIONEER Rubber Company

222 Tiffin Road • Willard, Ohio, U.S.A.

Pioneers in Industrial Hand Protection For Over 35 Years

When inquiring check FP 3491 opposite last page

For easiest maintenance use the versatile

GRINNELL-SAUNDERS DIAPHRAGM VALVE

The maintenance-saving design of Grinnell-Saunders Diaphragm Valves has accounted for important economies of labor and money, in hundreds of installations. The only part that will ever need replacement is the diaphragm, and that may last for years. To replace it is easy. You simply remove the four bolts holding the bonnet, leaving the body in the pipe line . . . remove the worn diaphragm, insert the new diaphragm . . . replace the bonnet and bolt it down. No refacing or reseating required . . . no packing glands to demand attention.

Originally perfected for air and water service, Grinnell-Saunders Diaphragm Valves are now widely specified for many other applications. They greatly reduce maintenance and replacement costs, especially in lines where corrosion, contamination, abrasion, clogging and leakage can be serious factors. Write today for the Grinnell-Saunders Diaphragm Valve Catalog . . . and assign your next valve problem to Grinnell.

GRINNELL
WHENEVER PIPING IS INVOLVED

GRINNELL COMPANY, INC.
EXECUTIVE OFFICES: PROVIDENCE, R. I.
SALES OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

When inquiring check FP 3492 opposite last page

unit. Wrapper measures approximately 12′ x 3′, requires one operator.

Literature on Model L Lettuce Wrapping Machine is available from Wrap-King Corp., Dept. FP, Berkshire St., Holyoke, Mass. When inquiring specify FP 3493 on handy form opposite last page.

Flange ball bearing unit has only 2 bolt holes

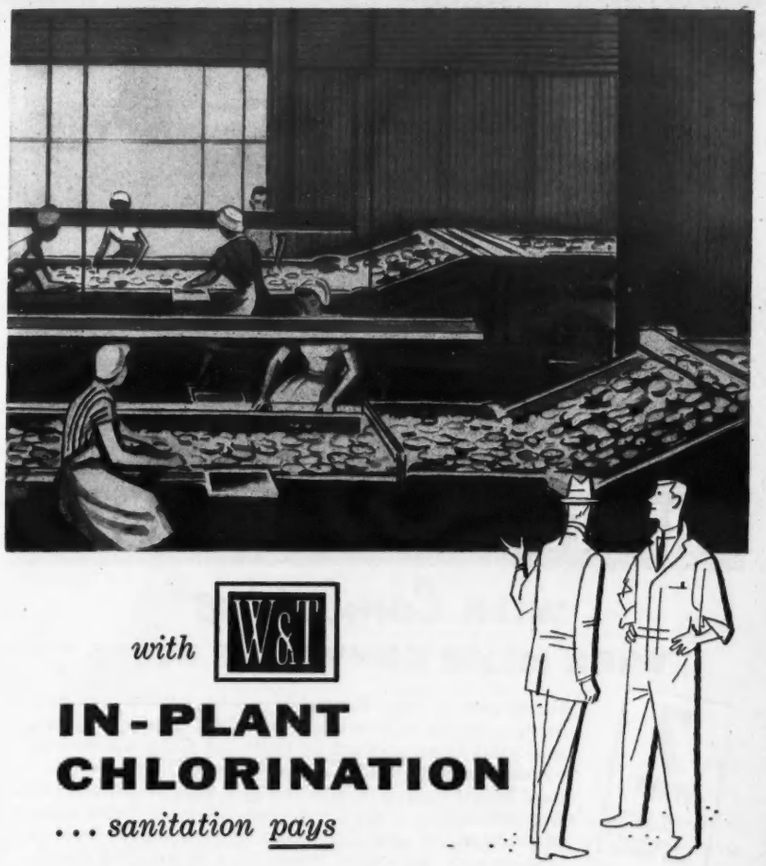
Two-bolt flange, ball-bearing unit is offered as replacement for present four-bolt units. Two fasteners are thus eliminated, as well as punching or drilling operation for two mounting holes. Units are available in shaft sizes from ½ to 2 3/16″. Single-sheet bulletin describes features and dimensions for various sizes.

Bulletin SS-125 is issued by Stephens-Adamson Mfg. Co., Dept. FP, 11 Ridgeway Ave., Aurora, Ill. When inquiring specify FP 3494 on handy form opposite last page.

Horizontal bulk storage bins for limited head room

Fact sheet describes horizontal storage bins for bulk material, designed for buildings with limited head room. Bins are built and shipped in sections, require only bolting to assemble. Oversize discharge screws prevent bridging of material.

Bulletin 549 is issued by The Day Co., Dept. FP, 810 Third Ave. N.E., Minneapolis 13, Minn. When inquiring specify FP 3495 on handy form opposite last page.



with W&T

IN-PLANT CHLORINATION

. . . sanitation pays

1. *By cutting average time spent on plant cleanups by more than 33%*
2. *By greatly reducing product spoilage caused by bacteria*
3. *By virtually eliminating all off-odors and slime on equipment and floors*

The list of benefits could go on and on. Many food processors are constantly discovering new benefits particularly related to their own processing operations. Essentially they all tell the same story:

"In-Plant Chlorination means lower operating costs and higher production efficiency."

Important, too, is getting the best "know-how" and equipment on the job. Wallace & Tiernan's nationwide field organization offers expert technical assistance, and W&T dependable chlorination equipment offers "expert" performance. For information on how In-Plant Chlorination by W&T can make *your* sanitation pay, write our Foods Division.

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
I-81

When inquiring check FP 3496 opposite last page

GRIT-FREE PRE-PACKAGING

WITH *Cambridge* WIRE MESH CONVEYOR BELTS

Regardless of what vegetable or fruit you're pre-packaging, canning or freezing, you'll get a more attractive, uniformly clean product by tank and spray washing on continuously moving wire mesh belts. Open mesh permits forced rinsing of dirt and grit, rapid drainage and free circulation of air for drying. All-metal belts speed production by carrying stock continuously through cutting and inspection. Write for this detailed discussion of how Cambridge Wire Mesh Conveyor Belts can speed production by minimizing manual handling.

No matter what food or process...

... canning, freezing, baking ... meat, poultry, candy, fruit or produce ... Cambridge Wire Mesh Conveyor Belts can reduce your operating costs and increase product quality by continuous uniform processing with reduced manual handling. Lifelong rust-protection, quick drainage of process solutions, lack of odor and freedom from contamination are only a few advantages. All-metal belt is impervious to damage from heat and cold. There are no sharp edges because Cambridge belts are woven from round wire.

Cambridge Wire Mesh Conveyor Belts are made in any size, mesh or weave, and from any metal or alloy. Special raised edges or cross-mounted flights to hold your product during movement are available.

Call in your Cambridge Field Engineer to discuss how you can cut food processing costs by continuous operation. You can rely on his advice. Write direct or look under "BELTING, Mechanical" in your classified telephone book.

ASK FOR FREE 130-PAGE REFERENCE MANUAL ... illustrating and describing wire mesh conveyor belts. Gives mesh specifications, design information and metallurgical data. Ask for Special Industry Folder on your operation.

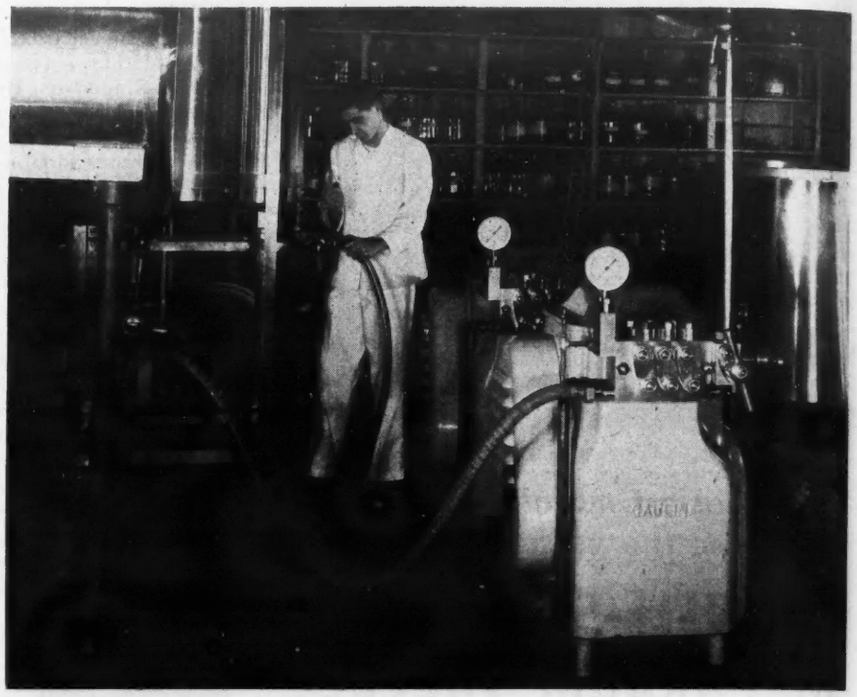
The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATIONS

DEPARTMENT H,
CAMBRIDGE 9,
MARYLAND

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check FP 3497 opposite last page



Operator hooks up second homogenizer (in background). Size of broken-up particles is controlled by adjusting two-arm valve at right of unit

homogenizers assure ... in Cott's flavors

Long-wearing units have ball checks which roll continuously—giving uniform wear

BERT ANDERSON Chief Chemist
Cott Beverage Corp.
as reported by FP staff

Problem: Cott Beverage Corp. makes flavor concentrates for franchise dealers at the headquarters plant in New Haven, Conn. These flavors, such as orange, lemon and lime, root beer, Tom Collins mix, etc., are homogenized in order to obtain a stable product with a uniform distribution of the flavor throughout the liquid.

For many years the homogenization was accomplished with small-capacity colloid mills. However, as product popularity increased and production became higher, the colloid mills became less and less adequate. Eventually they became an actual bottleneck in the operation.

Solution: About five years ago the colloid mills were replaced by a two-stage homogenizer. This unit forces the concentrate under high pressure through an

adjustable, microscopic opening between the homogenizing valve and its seat, creating very high velocities. The hydraulic shear and cavitation effects which result rend the dispersed flavor oils into fine state of subdivision. A second homogenizing action occurs when fluid — still traveling at high velocity, impinges with great force against impact ring which surrounds opening.

At Cott's, the concentrate is made up in 250 gal batches in tanks equipped with agitators. While tank is being drained by homogenizer, agitator is kept running to keep contents from settling and separating. Fluid is run through 2-stage unit at rate of 125 gph. Homogenizer pressure is maintained at 4000 lb.

This controlled pressure, which was not possible with the colloid mills, assures uniformity in the final product. To gain even fuller uniformity the concentrate is run through the homogenizer twice (since samples taken after just one pass have shown slight variations in composition).

As might be expected, the homogenizer parts are subject to very hard wear. To combat this, all critical parts are constructed of Stellite, a particularly hard metal alloy. A special design is incorporated for those parts receiving the most wear —

uniformity ... concentrates

the ball checks. They are designed to change position continuously, so that they wear as uniformly as possible, thus minimizing failure breakdown. Easily removed valves and valve seats are returned to manufacturer for regrinding after about 500 hours service.

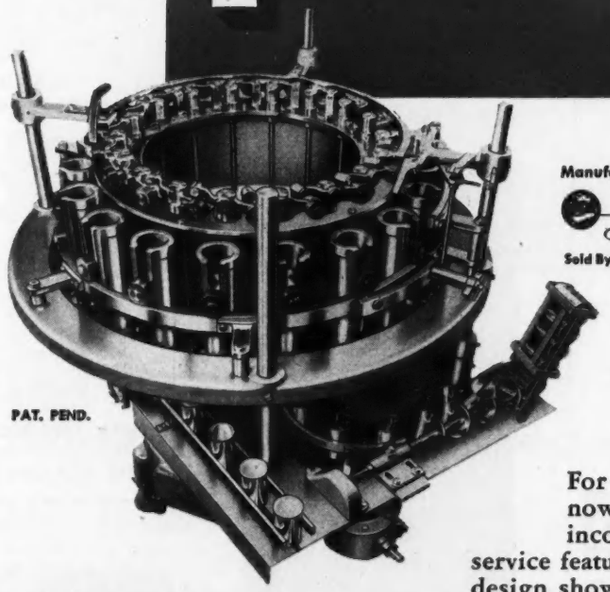
Results: Cott is well pleased with the performance of its homogenizer. As evidence of this, the firm purchased another such unit a year ago. Homogenizers produce a more uniform product than the colloid mills, and are easily able to keep up with production.

(Homogenizers used are produced by Manton-Gaulin Manufacturing Co., Inc., Dept. FP, 44 Garden St., Everett 49, Mass. . . . or for more information check FP 3498 on handy form opposite last page.)

VALVE DESIGN OF NEW

Librascope Filler

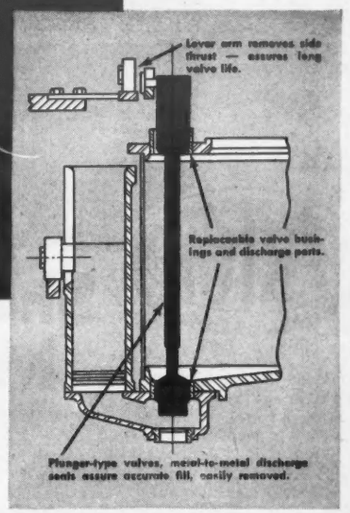
4 WAYS BETTER



PAT. PEND.

Manufactured by LIBRASCOPE INC.

Sold By W. F. & John Barnes


Lever arm removes side thrust — assures long valve life.
Replaceable valve bushings and discharge ports.
Plunger-type valves, metal-to-metal discharge seats assure accurate fill, easily removed.

Cross-section drawing of valve and piston assembly of the Top Fill, Model P Filler. Handles such products as Juice Concentrates, Tomato Paste, Dog Foods, Apple Sauce, and Oils.

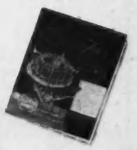
For liquids and semi-solids, W. F. & John Barnes now offers the canning industry a new Filler that incorporates many outstanding maintenance and service features. For example, the new plunger-type valve design shown in drawing above, offers 4 distinct advantages — (1) more positive closure against leakage of product; (2) correct amount of fill, including the very first containers through the machine; (3) clean discharge ports after each filling cycle, and (4) longer valve life.

OTHER PROFIT MAKING FEATURES

- **FAST, ACCURATE FILLING** — Up to 800 containers per minute. New valve design, precision machined pistons assure accurate measurement.
- **SURGICAL CLEANLINESS** — All product contact parts 316 stainless steel or non-copper alloy. Removable one-piece, lift-out valves and pistons assure fast, thorough cleaning.
- **FLAT TOP CAM, LARGE DIAMETER PISTON ROLLERS** — Insure accuracy of fill, prevent skidding and wearing flat spots on rollers.
- **UPRIGHT PISTON HEAD DESIGN** — Pistons enter upright cylinders from top, receiving product from bottom. Closed lower end of cylinders guards against leakage.
- **LARGE TURNING RADIUS** — Cylinders arranged on large turning radius permit a more gradual piston rise, reducing side thrust and rate of wear.

HIGH OUTPUT—LOWER MAINTENANCE COSTS

You'll find the new Librascope Filler gives you all of the refinements of accepted and proven practices in addition to the many other new and improved operating features outlined at left. Lower maintenance cost, combined with high output capacity, are features that will save you time and help reduce processing costs.



WRITE FOR FREE DATA — Write today for additional information on the Model G — Gravity, Model GP — Gravity Pocket, Model P — Piston, or Model PB — Bottom Fill Piston Librascope Fillers. Available with 6, 9, 12, 18, or 27 stations to meet your production requirements.

EXCLUSIVE SALES REPRESENTATIVE **W. F. & JOHN BARNES COMPANY**
408 SOUTH WATER STREET • ROCKFORD, ILLINOIS

W. F. & JOHN BARNES

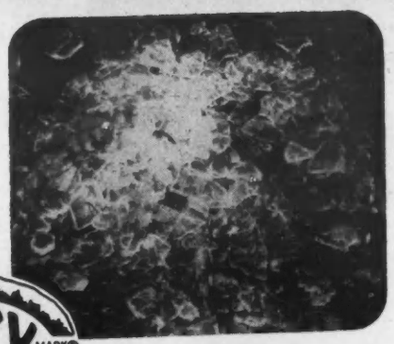
Aseptic Canning Equipment

Retort Basket Loaders and Unloaders

Empty Glass Single Fillers

When inquiring check FP 3499 opposite last page

Now! Harvest New Profits with a



TRADE FRICK MARK®

Shell-Ice Maker

Ideal for dairies, fisheries, poultry and vegetable packing houses, shippers, restaurants, institutions, ice and industrial plants— wherever sized ice is needed.

Shell-Ice is frozen on polished vertical tubes by direct-expansion ammonia or Freon, in thicknesses of 1/8 to 1/2 inch, and is broken by spinners into odd-sized pieces as small as wanted. No snow, scraping or waste, and no special cleaning required. Shell-Ice is hard and solid, and with average good water is clear.

The Shell-Ice Maker is quick-acting, highly efficient, automatic and economical. All-steel construction, no delicate parts. Scale does not collect on freezing surfaces. Built in 12 standard sizes, 1/2 to 30 tons ice-making capacity. Requires very small floor space. Dozens already in satisfactory service.

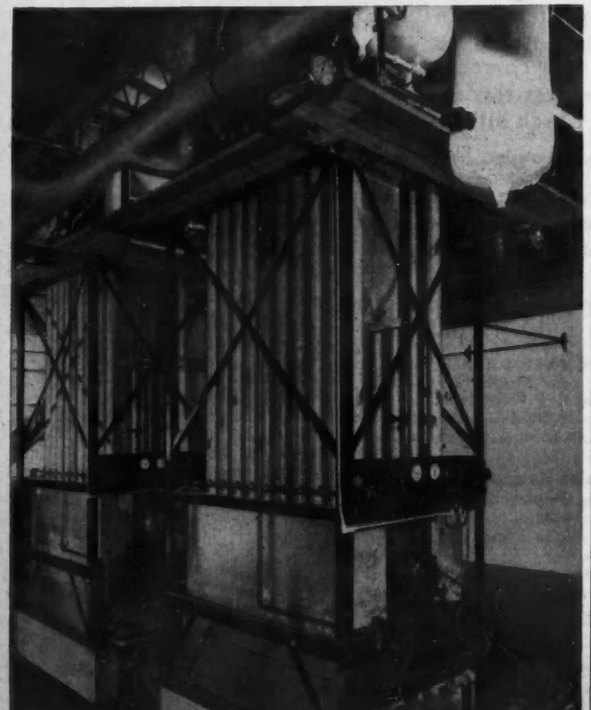
Get the whole story: Ask for Frick Bulletin 54.

Below: Two Shell-Ice Makers, each of 20 Ton Capacity, In Operation.

DEPENDABLE REFRIGERATION SINCE 1882

FRICK CO.

WAYNESBORO, PENNA. U.S.A.



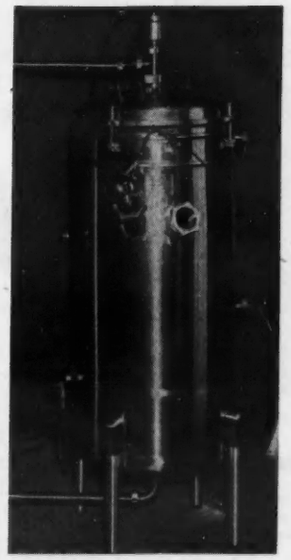
When inquiring check FP 3500 opposite last page

processing

Deaerates heat-sensitive foods using thin film flow

Vacuum maintained where liquid boils below inlet temp

Designed to quickly and completely deaerate delicate liquid foods, this unit operates by boiling under vacuum a thin film of the product flowing down inside of chamber wall. Capacities of different models range from 15 to 36 gpm. Vacuum is maintained



Liquid enters deaerator at top, flows down inner surface as thin film

at level where liquid will boil from 5 to 8°F below its entering temperature.

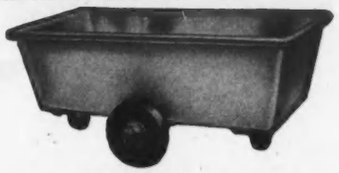
Chamber is stainless steel vessel with removable cover, polished inside and out, and is easily dismantled for cleaning. Self-locking baffle holds product entrainment in air and holds vapor to minimum. Complete system is entirely automatic — due to liquid level, pressure, and temperature controllers. Latter regulates inlet temperature of product. Vacuum source can be any type desired.

(San-i-tank Filmflo Deaerator is development of Metal Glass Products Co., Dept. FP, Belding, Mich. . . . or for more information check FP 3501 on handy form opposite last page.)

STANcase STAINLESS STEEL EQUIPMENT

ALL-SEAMLESS STAINLESS STEEL TUB No. 98

NEW! ALL-SEAMLESS TUB, drawn of one sheet of 18 ga. Stainless Steel. Ruggedly constructed for **long-life** service, yet light in weight (20 lbs.). Maintained sparklingly clean and sanitary with minimum labor. INSIDE DIMENSIONS: Diam. at top — 19"; Diam. at bottom — 16"; Depth — 13½". Overall Height — 13¾". CAPACITY — 56 Qts. or 100 Lbs.



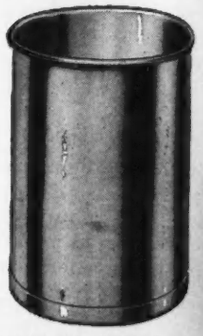
STAINLESS STEEL FOOD HANDLING TRUCKS

MODEL No. 36 — of 16 ga. Stainless Steel. Inside dimensions: 58" x 25½" x 17" deep. Three other popular sizes available. Write for catalog.

SANITARY, STAINLESS STEEL DRUMS

Ruggedly constructed for **long-life** service of 16 ga. Stainless Steel. Inside surfaces are seamless and polished; maintained sparklingly clean and sanitary with minimum labor. Foot rings are made of heavy gauge Stainless Steel; take abuse of service (bottom of drums do not rest on floor). **AVAILABLE IN 2 SIZES:**

MODEL No. 30 — 30 Gal. Cap.
MODEL No. 55 — 55 Gal. Cap.
Snugly fitting covers of 16 ga. Stainless Steel available.



FULLY APPROVED BY HEALTH AUTHORITIES

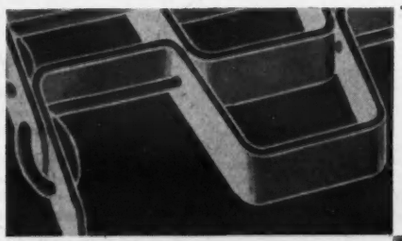
Manufactured by

THE STANDARD CASING CO., Inc.

WRITE FOR CATALOG OF COMPLETE LINE OF SANITARY, STAINLESS STEEL EQUIPMENT.

121 Spring St., New York 12, N. Y.

When inquiring check FP 3502 opposite last page



Completely **FLEXIBLE...**

no creep
no weave
no jump

LA PORTE

FLEXIBLE STEEL CONVEYOR BELTING

La Porte's flexibility will brighten your profit picture—both in application and in performance. Adaptable to every type of food handling operation from loading hopper to shipping. Flexible *open mesh* feature provides tighter grip on the friction drum, prevents slippage, jerking . . . provides perfectly flat, smoother-moving surface for containers. Easier to clean, maintain. Steel construction stands up under heaviest abuse, lasts years longer.

La Porte's initial cost is lower than comparable types, too! Available in any length, practically any width. So, whatever your process, find out the many ways you'll profit by installing versatile, long-lasting La Porte Conveyor Belting.

LA PORTE

Write TODAY for illustrated literature, prices.

MAT AND MFG. CO.

BOX 124 Dept. A *La Porte, Indiana*

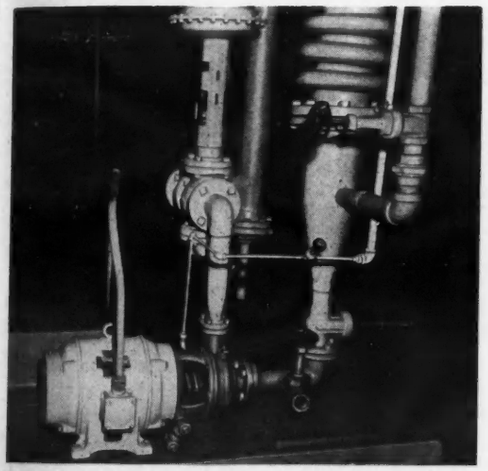
When inquiring check FP 3503 opposite last page

Handling corrosive, abrasive syrup does not damage pump's "hard-skin"

Pump installation includes controller to assure adequate flow to fourth stage of evaporator

A Midwest distillery was using a positive displacement pump driven by a 25 hp motor to handle a viscous syrup. The syrup contained corrosive elements, principally lactic acid. Solids content of 35%, made up largely of particles of grain added the problem of abrasion. These conditions resulted in pump failures.

Old pump was then replaced with one entirely of aluminum bronze construction, including supporting members. Casing gasket is offset and protected from erosion. Blind tapping is avoided,



Centrifugal pump — 7½ hp motor — and controller which operates diaphragm valve to control level

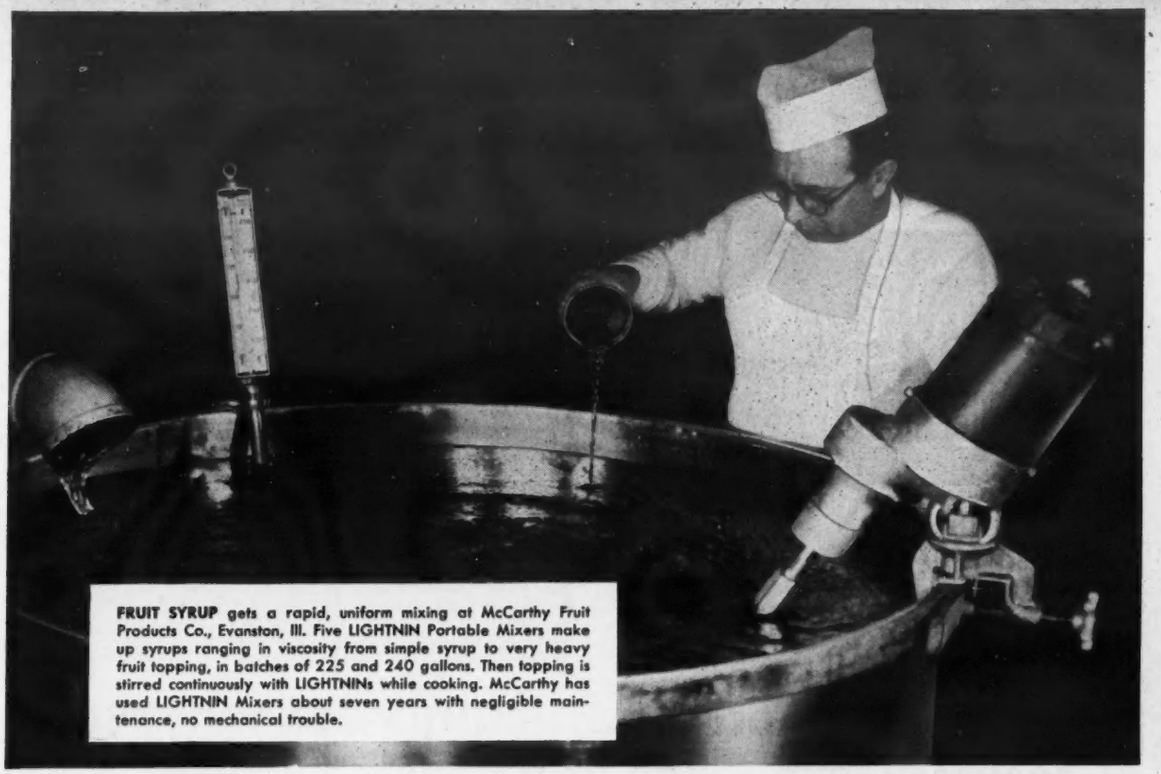
preventing corrosion break-through. Aluminum bronze alloy withstands action of lactic acid and abrasive solids. Pump is driven by 7½ hp motor compared with that of 25 hp formerly required. Entire pump installation is more compact.

Pumping operation takes place between the third and fourth stages of a multiple effect evaporator. Control of liquid level in the fourth stage is vital. Should level become too low, the material will dry. When this happens the hardened mass has to be chopped out.

In the original installation a variable speed drive was placed between pump and motor so that flow capacity could be varied, but this did not prove satisfactory.

With the new pump a level controller actuates diaphragm-operated control valve. This action regulates flow through discharge side of pump.

(Centrifugal pump is built by Ampco Metal, Inc., Dept. FP, 1745 S. 38th St., Milwaukee 6, Wis. . . . or check FP 3504 opposite last page.)



FRUIT SYRUP gets a rapid, uniform mixing at McCarthy Fruit Products Co., Evanston, Ill. Five LIGHTNIN Portable Mixers make up syrups ranging in viscosity from simple syrup to very heavy fruit topping, in batches of 225 and 240 gallons. Then topping is stirred continuously with LIGHTNINs while cooking. McCarthy has used LIGHTNIN Mixers about seven years with negligible maintenance, no mechanical trouble.

How McCarthy Fruit Products mixes syrups without trouble

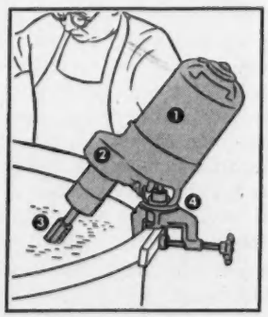
The McCarthy Fruit Products story is typical: "Efficient mixing . . . no difficulties."

And it's the same story we get from food processors everywhere who are using LIGHTNIN Mixers. Many of them have been using the *same* LIGHTNINs for 20 years or more.

You can get LIGHTNINs to handle *all* your fluid mixing—in any open or closed tank of any size or shape. Thirty portable models, in sizes from ⅛ to 3 HP. Other types from 1/42 to 500 HP. Mixing results are fully guaranteed.

For quick service, just call your LIGHTNIN Mixer representative. He's listed in your copy of Thomas' Register. Or write us today.

McCarthy gets these advantages with LIGHTNIN Mixers. You can, too.



1. **Ball bearing motor.** Continuous heavy-duty type. Bearings are prelubricated and permanently sealed.

2. **Quiet gears** (in gear drive models). Precision cut, specially hardened, sealed in lubricant bath.

3. **Easy shaft adjustment.** Two-piece chuck grips shaft permanently—yet loosens instantly if you want to adjust, remove or change shaft.

4. **Ball and socket clamp** instantly locks the mixer at any angle for the desired mixing action. Quick, positive lock requires no wrench to tighten.

"Lightnin" Mixers

MIXCO fluid mixing specialists

Get these helpful facts on mixing: cost-cutting ideas on mixer selection; best type of vessel; installation and operating hints; full description of LIGHTNIN Mixers. Free—no obligation. Just check data you want, tear out and mail to us today with your name and company address.

- ☐ B-102 Top Entering Mixers (turbine and paddle types)
- ☐ B-103 Top Entering Mixers (propeller types)
- ☐ B-104 Side Entering Mixers
- ☐ B-107 Mixing Data Sheet
- ☐ B-108 Portable Mixers (electric and air driven)
- ☐ B-109 Condensed Catalog (complete line)
- ☐ B-111 LIGHTNIN Rotary Mechanical Seals
- ☐ B-112 Laboratory Mixers

MIXING EQUIPMENT Co., Inc., 132-j Mt. Read Blvd., Rochester 11, N. Y.
In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.

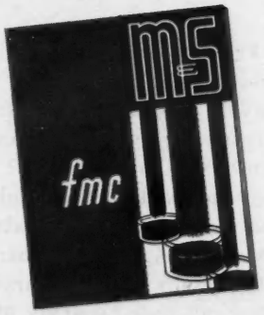
When inquiring check FP 3505 opposite last page

Performance-proved...unsurpassed for speed, accuracy, and range of products handled!

This is why quality-built M & S Fillers are truly the "Standard of the Filling Industry." They provide an unbeatable 3-way combination of the most *accurate* measurement at *highest* speeds on the *widest range* of liquid, semi-liquid, and heavy semi-solid products!

M & S Fillers are easily adapted to fill all cans, jars, and even cartons. Speeds are limited only by the closer or capper. Endurance is a by-word with M & S Fillers: each of the eight basic models is precision-engineered for heavy duty, long life operation. Servicing is made easy and simple: all checking, lubrication and adjustment points are handy to reach. The fine quality and performance of M & S Fillers is assured through the use of special alloys and rigid factory inspection. And the exclusive FMC "No-can, No-fill" feature prevents spilling and waste.

By all comparisons, these are the finest fillers made—designed and built to perform better, longer and at lower cost.



New Filler Bulletin Just Off the Press!

This new FMC Bulletin completely describes the eight basic M & S Fillers in this famous line. Specifications and illustrations of all models are included, along with detailed explanations of accuracy, operation, and construction features. Various attachments are also described, as well as graphic illustrations of their application in handling a wide variety of products.

Clip and Mail Today!

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or 103 E. Maple St., Hoopeston, Ill.

Please send me a copy of your Bulletin No. 501 E on "M & S Fillers by FMC."

Name _____ Title _____

Company _____

Address _____

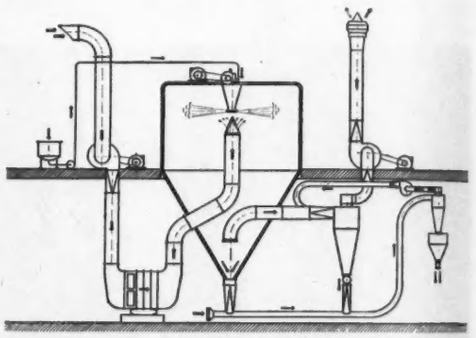
City _____ Zone _____ State _____

When inquiring check FP 3506 opposite last page

Spray dry systems engineered to nearly any capacity— 1 lb to 10 tons/hr

Concurrent operation, centrifugal atomizer spray nozzles, and adjustable air dispersers are principal features in spray dryers, which, together with auxiliary equipment, are engineered to exact needs of particular processor. Unit sizes range from laboratory systems producing as little as one to five lb per hour, to plant models producing more than 10 tons per hour.

In accompanying diagram, liquid product enters dryer from top, and is dispersed by centrifugal atomizer. Heat is supplied by hot air stream entering dryer just beneath spray nozzle. An air disperser at the end of the hot air duct causes the air to form an "umbrella" which prevents product from falling into air duct.



Diagrammatic sketch of spray drying system

A high temperature difference between air and feed is maintained, so that drying is rapid, and particles are free-flowing before they strike chamber surface. Therefore, no sticking occurs, and product falls immediately to discharge at bottom of steep-sided cone. Moist air passes out of dryer and into cyclone separator to remove entrained particles.

(Nerco-Niro spray drying systems are offered by Nichols Engineering & Research Corp., Dept. FP, 70 Pine St., New York 5, N.Y. . . . or for more information check FP 3507 opposite last page.)

Freezer doors of all shapes, sizes shown in company catalog

Description of versatile line of freezer doors in 14-page catalog is supplemented by sketches, photos, specifications, and design details. Walk-in, reach-in, and vestibule type doors are all included.

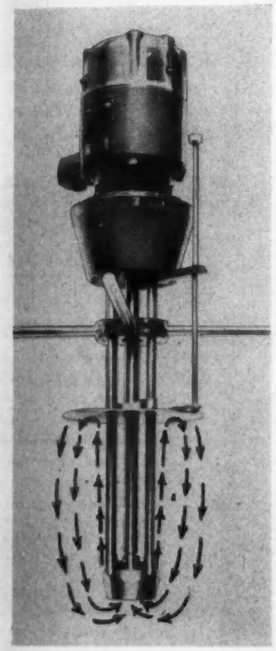
Freezer door catalog is issued by Jamison Cold Storage Door Co., Dept. FP, Hagerstown, Md. Specify FP 3508 opposite last page.

No vortex, faster circulation provided by high-speed portable mixer

Blends, disperses, homogenizes; peripheral speed is from 60 to 100 ft/sec

Uses: For mixing, dispersing, and homogenizing salad dressings, chocolate coatings and dispersions, icings, beverage emulsions.

Features: High-speed unit speeds up mixing cycles and provides uniform mix without vortex. Mixer operates at peripheral velocities (along outer periphery of rotating rotor) of about 60 ft/sec to more than 100 ft/sec, depending upon size of unit. Mixer handles solutions having viscosities to 30,000 cp.



Mixers are available in various sizes ranging from ⅓ to 30 hp.

Units are easy to disassemble. Rotors may be interchanged to suit individual requirements of any particular batch.

Description: Mixer produces relatively homogenous emulsions and dispersions in particle sizes ranging from less than 1 to about 50-75 microns. In operation, entire mass of materials being mixed is kept in constant circulation, drawing in at the open base of rotor sleeve (filling vacuum created by ejection of material at top of sleeve and pull of rotor), then striking baffle plate and turning down to repeat cycle until thoroughly mixed. Circulation is set up as soon as rotor is in motion.

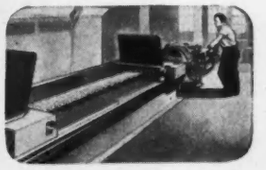
(Jet mixers are product of the Hermas Machine Company, Dept. FP, P. O. Box 166, Hawthorne, New Jersey . . . or check FP 3509 on handy form opposite last page.)

NEXT MONTH —

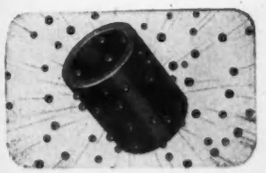
Read how Algin Corp. of America got five times more cooling, using plate heat exchangers for their Irish Moss extractives

In roller chain . . . EXTRAS* like these give you extra reliability

LOCK-TYPE BUSHINGS (applied on a range of sizes) end a cause of stiff chain.



PRE-STRESSING of multiple width chain provides uniform load distribution.



SHOT-PEENED ROLLERS have greater fatigue life, added ability to withstand impact.

CLOSER HEAT-TREAT CONTROL — coupled with rigid testing insures uniformity.

*And you pay no premium for these LINK-BELT extras

BIG reason why Link-Belt Precision Steel Roller Chain is first choice for so many tough jobs is that it has *extra reliability built-in.* For example, pre-stressing smooths out any irregularities of multiple width chain *in advance.* And it's just one of many *extras* you get as *standard* from Link-Belt. Check the three others shown here. Then call the Link-Belt office or authorized stock carrying distributor near you for facts on Link-Belt's complete range of roller chain and sprockets. Data Book 2457 gives full information on single and multiple widths, in ¼" to 3" pitch, 1" to 3" double pitch. Ask for your copy.

LINK-BELT

ROLLER CHAIN & SPROCKETS

13,702

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Austria, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

When inquiring check FP 3510 opposite last page

centralized steam-blast cleaning cuts clean-up time

Pair of ruffle-slicers, used for making grid-cut French fried potato chips, are dismantled and cleaned with high-pressure chemical solution. Note three quick-action valves on cleaning lines against wall

J. P. HICKEY, Production Manager,
CLIFFORD SHORE, Plant Superintendent,
Bell Brand Foods
as reported by FP staff

Chemical solution, steam, and rinse lines immediately available at 20 locations throughout Bell Brand Foods' plant

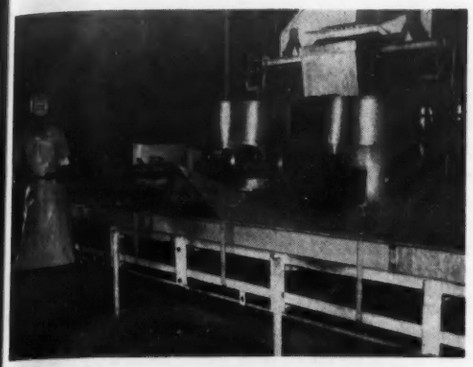
Centralized steam-chemical cleaning system allows full-scale pressure cleaning at any point in the plant, at any time, simply by hooking into a nearby line at Bell Brand Foods, Los Nietos, Calif. Three lines run to nearly twenty stations located throughout the plant — each with a set of quick-coupling cleaning hoses nearby.

Bell Brand processes such items as potato chips, corn chips, puffs, and curls, peanut butter, shoestring potatoes, and pretzels. Clean-up, especially on equipment used for deep-oil frying, must be rigorous. The central cleaning system furnishes a complete range of cleaning combinations for such a job.

First, a chemical cleaning solution is furnished to each station through one of the three pipes. This solution allows use of pressures of from 50 to 150 psi through the steam gun. Next, the hose is plugged into the hot water line, where a pressure of 500 psi churns the detergent on the surface of the equipment, floating away the mixture of cleaning compound and material to be removed. Finally, the hose is plugged into the cold water line for final rinsing.

Having these cleaning facilities at hand results in lowered operating costs for clean-up, since clean-up crew does not have to wait on one another to finish with the cleaning equipment before starting on another operation.

Heart of the cleanliness program at Bell is the central steam cleaning unit, located in a 9′ by 14′ room toward rear of the big (70,000 sq ft floor



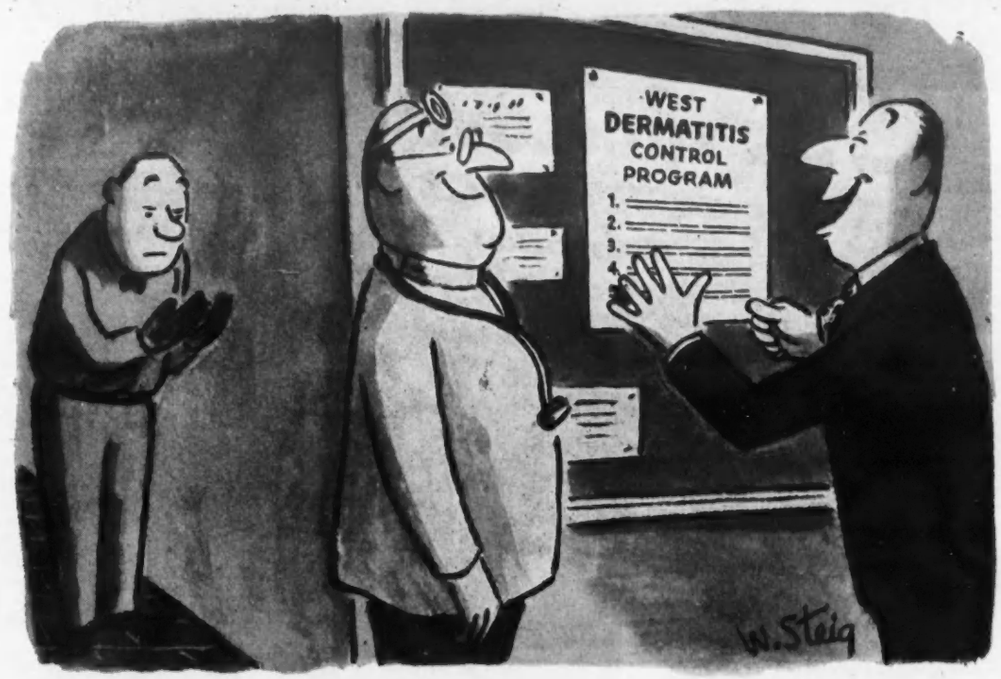
Potato slicing equipment and conveyors get the steam-chemical treatment. Wire mesh conveyors are cleaned while running at end of each shift

Centralized cleaning system is shown here. In foreground is unit housing the burner, coils, and positive displacement pump. Behind the maintenance man is the tank which holds chemical cleaning solution

space) plant. System is completely automatic, with safety shut-off to protect coils in case of water or current failures. A 5 hp, 3 phase motor operates the power blast system, which furnishes the 500 psi pressures. A 1 hp motor operates cleaner when the power blast system is not in use.

The model at Bell Brand will deliver up to 1000 gal/hr of either hot (185°F) or cold water at 500 psi, plus 300 gal/hr steam cleaning solution at 80 psi. A positive displacement pump maintains suitable pressure throughout the piping system.

(Kelite Power-Master steam cleaning system is product of Kelite Corporation, Dept. FP, 1250 N. Main St., Los Angeles 12, Calif. . . . or for more information check FP 3511 on handy form opposite last page.)



"Doc, dermatitis control is simple as 1-2-3-4-5."

An exaggeration?

Not at all. Occupational skin irritation can be prevented. Simply. Inexpensively.

—with the WEST Dermatitis Prevention and Control Program that:
1—insures personal cleanliness
2—protects exposed skin areas
3—prevents clothing contamination
4—guards against special hazards
5—provides continuous consultation.

WORKERS free of skin irritation can save you hundreds, perhaps thousands, of dollars each year—by eliminating the cost of:
—medical treatment
—enforced idleness
—absenteeism
—sacrificed quality
—lowered morale
—production lags.

THE WEST Program for controlling skin irritations is based on individual shop requirements and an in-your-shop survey, made without obligation. Let a WEST representative plan the details. Or send for our 24 page booklet on the "Control of Industrial Dermatitis."

OLDEST AND LARGEST COMPANY OF ITS KIND IN THE WORLD

WEST DISINFECTING Company

WEST DISINFECTING COMPANY — Dept. 9
42-16 West Street, Long Island City 1, N. Y. (Branches in principal cities)
In Canada: 5621-23 Casgrcin Ave., Montreal

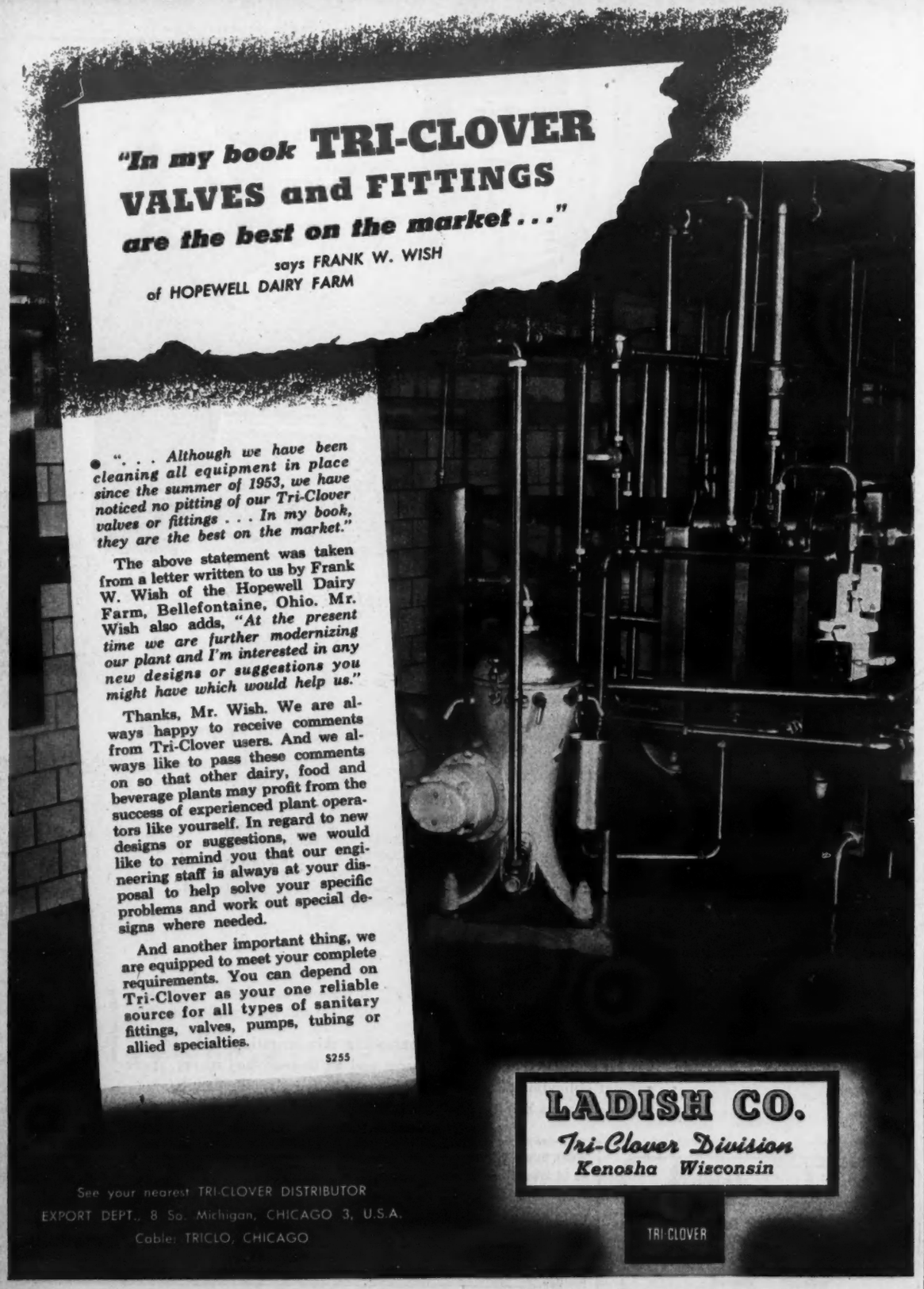
☐ I'd like a free copy of your 24 page booklet on dermatitis.
☐ I'd like to have a WEST representative telephone me for an appointment.

Name_____

Position_____

(Tear out this coupon and mail it with your letterhead)

When inquiring check FP 3512 opposite last page


"In my book TRI-CLOVER VALVES and FITTINGS are the best on the market . . ."
says FRANK W. WISH
of HOPEWELL DAIRY FARM
". . . Although we have been cleaning all equipment in place since the summer of 1953, we have noticed no pitting of our Tri-Clover valves or fittings . . . In my book, they are the best on the market."
The above statement was taken from a letter written to us by Frank W. Wish of the Hopewell Dairy Farm, Bellefontaine, Ohio. Mr. Wish also adds, "At the present time we are further modernizing our plant and I'm interested in any new designs or suggestions you might have which would help us."
Thanks, Mr. Wish. We are always happy to receive comments from Tri-Clover users. And we always like to pass these comments on so that other dairy, food and beverage plants may profit from the success of experienced plant operators like yourself. In regard to new designs or suggestions, we would like to remind you that our engineering staff is always at your disposal to help solve your specific problems and work out special designs where needed.
And another important thing, we are equipped to meet your complete requirements. You can depend on Tri-Clover as your one reliable source for all types of sanitary fittings, valves, pumps, tubing or allied specialties.
S255
LADISH CO.
Tri-Clover Division
Kenosha Wisconsin
See your nearest TRI-CLOVER DISTRIBUTOR
EXPORT DEPT., 8 So. Michigan, CHICAGO 3, U.S.A.
Cable: TRICLO, CHICAGO
TRI-CLOVER

See our display — BAKING INDUSTRY EXPOSITION — BOOTHS 825-827
When inquiring check FP 3513 opposite last page

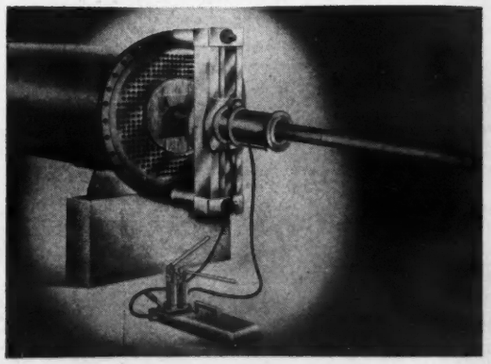
Cuts hazards and time involved in pulling tube bundles

Hydraulic handling device eliminates need for "jerry-built" rigging

Uses: Removal and replacement of heat exchanger tube bundles.

Features: Hydraulic handling device eliminates need for "jerry-built" rigging and pulling beams. It also reduces safety hazards presented by conventional equipment and can be operated by only two men to push a bundle eight feet in less than 25 min.

Description: Since handling device is attached directly to exchanger shell, no temporary steel structures are required to withstand powerful thrust. None of removal force is transferred to exchanger supports.



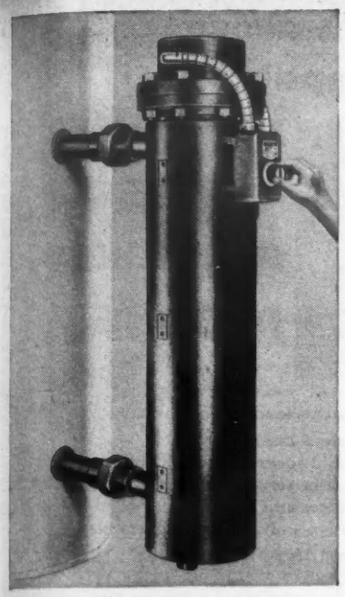
Ejector can be operated by only two men to push a bundle eight feet in less than 25 min

Adjustable yoke accommodates wide range of exchanger diameters. By loosening two bolts, center portion of yoke slides in or out to fit any heat exchanger from 8″ ID. Installation is easy. Two struts from adjustable yoke are connected directly to bonnet-end flange of exchanger. Installed device supports itself.

Pumping unit supplied with device consists of two pumps: one for loosening bundle, the other for moving bundle through exchanger shell. To retract piston of jack at conclusion of its forward stroke, mere reversal of selector valve handle on pump base directs hydraulic fluid to opposite side of jack piston for quick return.

Heat exchanger tube bundle ejector is available as a complete packaged unit, including pump, hose, adjustable yoke, ram, tie rods, cable and all other necessary equipment.

(Hydro-ejector is a product of The M. W. Kellogg Company, sub. of Pullman, Inc., Dept. FP, P. O. Box 469, Jersey City 3, N. J. . . . or for more information reader may simply check FP 3514 on handy form opposite last page.)



CHROMALOX ELECTRIC CIRCULATION HEATERS

Temperatures to 750° rapidly reached . . . accurately controlled

You get these advantages—

Automatic, self-contained heat exchanger that is easy to install, operate and maintain.

- Pre-engineered design with built-in insulation, thermostat and mounting provisions.
- Two pipes connect it . . . two wires energize it. Set it and forget it.

Dependable, round-the-clock operation. Ideal for converting steam or gas heated equipment to automatic electric operation.

Savings that more than pay cost of installation.

For these uses—

Preheating oil—heating water—generating, superheating and drying steam—heating process kettles and tanks—heating Dowtherm, Aroclor, Prestone and similar heat transfer liquids—heating air, nitrogen and other gases.

Let the Chromalox Sales-Engineering staff solve your heating problems . . . electrically.

Write today for your copy of Bulletin 701

. . . to get complete information on Chromalox electric heat exchangers and applications.

For information on complete line of Chromalox electric heaters, elements, thermostats, contactors and switches —request Catalog 50.

Edwin L. Wiegand Company

7611 Thomas Boulevard, Pittsburgh 8, Pa.

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☐ a copy of Bulletin 701.
☐ a copy of Catalog 50.
☐ a Sales-Engineer contact me.

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City_____ Zone____ State_____

A-4490-A

When inquiring check FP 3515 opposite last page

Cleans, deodorizes, sanitizes in one operation

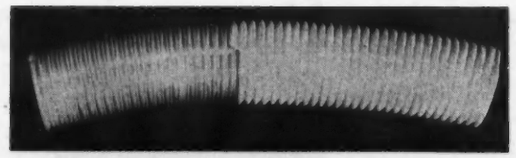
Detergent provides 140 ppm of available Cl at concentrations of ½ oz/gal of water

New cleaner is soluble in cold or warm water. Recommended solutions are safe on personnel, metal, rubber, and plastic surfaces. Chlorinated detergent destroys bacteria and odors on contact and brightens stainless steel as it cleans, according to manufacturer. Forming no suds in solution, cleaner is specially useful for in-place cleaning and sanitizing, since there are no air pockets caused by foam in pipelines during circulation. In addition product can be used as sanitizing agent alone on pre-cleaned equipment.

Providing 140 ppm of available chlorine at concentrations of ½ oz/gal of water, chlorinated detergent may be applied by brushing, swabbing, or circulation.

(Chlor-tergent is product of Oakite Products, Inc., Dept. FP, 27A Rector St., New York 6, N.Y. . . . or check FP 3516 opposite last page.)

Wire embedded in polyethylene yields non-collapsing hose



Hose retains flexibility, chemical resistance, and durability over wide range of temperatures

Uses: Non-permanent, flexible piping for liquid food products.

Features: Polyethylene film used in manufacture of hose contains no plasticizer—cannot impart off-taste to food products. Film is chemically inert, resists corrosion by most materials. Hose retains lightness, flexibility, chemical resistance, and durability over wide temperature range.

Description: Flexible hose is made from two plies of polyethylene film which enclose a spiral of stainless steel wire. Where additional reinforcement is desired, hose may be armored with flexible stainless steel braid or with a heavy plastic.

(Flexible hose is a product of Plastiflex Co., Dept. FP, 2001 Main St., Santa Monica, Calif. . . . or check FP 3517 on handy form opposite last page.)

(Polyethylene used in the hose is manufactured by Visking Corp., Plastics Div., Dept. FP, East Fort Harrison Rd., Terre Haute, Ind. . . . or for more information check FP 3518 opposite last page.)

...including DUST CONTROL

Times have changed . . . so have dust control methods. The DAY Company has played an important part in modernizing the control of dust with a new concept, a new design in dust filtering. The DAY High Pressure, Reverse Jet Dust Filter manufactured under DAY and Hersey patents is a real departure from "yesterday's" type filter.

THE DAY "AC" FILTER PROVIDES ADVANTAGES FOUND IN NO OTHER FILTER

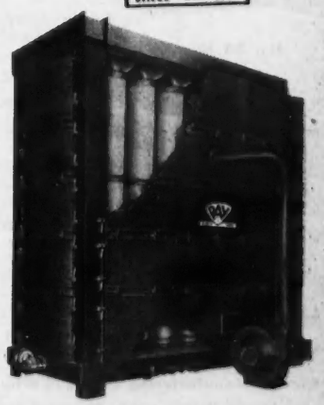
It saves valuable plant space because a smaller unit handles more dust laden air. Installation time is cut to a minimum because it is pre-assembled at the factory. The DAY "AC" High Pressure, Reverse Jet Filter brings to industry such advanced features as self-adjusting cleaning rings; square-to-round streamlined dust-laden air inlets; dust separation from different exhaust systems within one filter and multiple screw conveyor discharges. These and many more features give you the most efficient dust filtering at the lowest cost.

Leading companies have used DAY High Pressure, Reverse Jet Filtering for five years. 87% of DAY filter users have ordered *additional* DAY Reverse Jet Filters.

For facts about modern dust filtering—write toDAY for Bulletin 528R.

The DAY Company

848 Third Ave. N.E., Minneapolis 13, Minn.
IN CANADA: P.O. Box 705, Fort William, Ontario
Branch Plants: Buffalo, Fort Worth & Toronto, Ont.
Representatives in Principal Cities



Cutaway view of the DAY Dust Filter —available housed or unhoused—for use on either vacuum or pressure. (Licensed by H. J. Hersey, Jr.)

STOP AIR POLLUTION with DAY DUST CONTROL

When inquiring check FP 3519 opposite last page

EDMONT CASE NO. 582: World famous breakfast food manufacturer (name on request) job-tested No. 151 plastic impregnated gloves against leather faced gloves being used to handle kraft shipping containers. Result: Bought 113 dozen pairs within next 60 days after the test proved their greater comfort, safety and much longer wear.

Cost drops when gloves fit job

No. 151 Werx
Plastic impregnated.

No. 36 Monkey Grip
Plastic coated.

No. 930 Redmont. Neox (reinforced neoprene) coated.

Correct selection of the work gloves used by employees pays valuable dividends to management. After making the test of job-fitted gloves referred to in Case No. 582, above, the manufacturer reported: **"We found the No. 151 gloves were light and comfortable to wear, afforded excellent gripping action on the kraft containers, and wore considerably longer than the leather-faced gloves formerly used for which we paid approximately the same price. We have added this item to our inventory as a regular supply, and find that there are many other places in the plant where they can also be used to advantage."**

OVER 50 TYPES of Edmont job-fitted gloves are available to meet specific needs, palm coated or fully coated with Neox, various plastics or rubber, to resist cutting, abrasion, heat, cold, oils, acids, caustics, other chemicals.

EDMONT CASE NO. 317: In large meat packing plant, canvas gloves lasted 2 days handling hog shackles. Job-fitted gloves, coated with Edmont plastic, lasted 3 weeks.

MAKE THIS FREE JOB-TEST: Send description of your job operation, materials handled, temperature condition. Without cost, we will supply job-fitted gloves for testing.

Edmont Manufacturing Co., 1212 Walnut Street, Coshocton, Ohio

World's largest maker of coated industrial gloves, available through your industrial supplier.

Edmont

Edmont job-fitted gloves

When inquiring check FP 3520 opposite last page

Lower maintenance cost with belt-driven exhaust fan

In addition to its lower price advantage, belt-driven exhaust fan recently announced by manufacturer reduces installation and maintenance costs. It is designed to accommodate any standard motor of proper rating.

Fan unit is available in a range of sizes from 12 through 48" diameter, with capacities from 900 to 38,000 cfm. It is suitable for operation against static pressures up to 1½" water. Design features include non-sparking, non-corrosive, solid cast aluminum blade, sealed ball bearings, adjustable motor mount support.

(Series R exhaust fans are products of M & E Manufacturing Co., Dept. FP, 2571 Winthrop Ave., Indianapolis 5, Ind. . . . or for more information check FP 3521 on handy form opposite last page.)

Snap-on pipe insulation now made in sizes from ¾" to 24"

Eight-page bulletin includes charts and data for recommended uses of snap-on pipe insulation in newly available sizes, ranging from ¾" to 24". Former size range was 2" to 10". Features of this type insulation are also included in bulletin.

A.I.A. File No. 37-D-2 is issued by Gustin-Bacon Manufacturing Co., Dept. FP, 210 W. 10th St., Kansas City, 5, Mo. When inquiring specify FP 3522 on handy form opposite last page.

Chart lists causes of pump troubles

List of common trouble symptoms in rotary displacement pumps is charted against their possible chemical and/or mechanical causes. Bulletin also explains how and where chart applies, together with brief des-

for hard—tough—dense concrete repairs..

Non-Shrink

EMBECO PRE-MIXED MORTAR

Outlasts and outwears plain cement-sand patches because...

- *Does not shrink* upon hardening.
- Bonds tightly to old concrete and mortar.
- Tough iron particles serve as reinforcement.
- Density resists water and oil penetration.
- Higher compressive and impact-resistant strength.
- Hard—contains no asphalt.

send for folder

EMBECO PRE-MIXED MORTAR IS READY TO USE—you add only water.

Used to patch cracks, disintegrated and worn concrete floors, walks, steps, walls, etc.

Write for 4 page folder illustrating many applications.

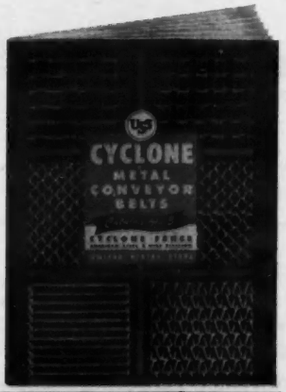
Creators and Manufacturers of Products to Improve Concrete and Mortar

THE MASTER BUILDERS CO.

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO 15, ONTARIO

When inquiring check FP 3523 opposite last page

Processing costs too high?



Send for this FREE catalog

Cyclone Metal Conveyor Belts are working wonders—cutting processing costs, speeding operations, increasing product output. They are flexible—open meshed—sanitary—immersible in water, oils, chemicals—temperature resistant. Cyclone Belts come in several basic styles and in carbon, alloy and stainless steels. There are many mesh and wire sizes available together with various accessories.

This big, 32-page catalog will show you the extremely wide scope of Cyclone Belts—the most complete line of wire mesh processing belts now available. There are actual pictures of many applications. See why Cyclone Belts can do your particular job so well.

CYCLONE FENCE DEPARTMENT
AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
WAUKEGAN, ILLINOIS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS CYCLONE METAL CONVEYOR BELTS
SPIRAL WOVEN
FLAT WIRE · FLEX-GRID

USS

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Waukegan, Illinois

Please send me your big, illustrated Catalog #5. No charge or obligation.

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UNITED STATES STEEL

When inquiring check FP 3524 opposite last page

A DUPPS LAVATORY

★ Meets the most rigid sanitary requirements ★ Is easy to install ★ Lasts a lifetime

Entirely self-contained, the DUPPS Lavatory is ready for use. Merely connect to your water and drainage lines. The aluminum pedestal is corrosion resistant and the stainless steel bowl will last a lifetime. Foot control valves aid sanitation and convenience of operation. It's easy to clean, keep clean.

WRITE US TODAY

THE DUPPS COMPANY
Germantown, Ohio

When inquiring check FP 3525 opposite last page

NEW COLD PROCESS ROOFKOTER
CUTS ROOF REPAIR IN HALF!

Repair time is NOW—how's *your* roof? Tropical Cold Process Roofkoter and your own unskilled labor gives you a firstclass reconditioned roof. Cut repair costs in half—get long-lasting, "live" roof. Flexes with temperature changes. No cracking or drying out. Add years of weather-tight roof-life—*the Tropical way!*

FREE: Your business letterhead request brings you money-saving book "Saving Old Roofs". Write today!

TROPICAL PAINT COMPANY
Heavy-duty Paints Since 1883
1130-1212 W. 70th St., Cleveland 2, Ohio
Subsidiary of Parker Rust Proof Co.

When inquiring check FP 3526 opposite last page

cription of pumps in rotary class.

Bulletin PT, "Pump Chart Spots the Trouble," is available from Eco Engineering Co., Dept. FP, 12 New York Ave., Newark, N. J. When inquiring specify FP 3527 opposite last page.

How to preserve masonry told in 16-page brochure

Illustrated with over 50 photos and diagrams, brochure discusses masonry preservation in some detail. Subjects covered include various types of masonry, effects of outer water absorption and inner vapor migration, methods of caulking and pointing joints.

"Masonry Preservation" is issued by Tremco Manufacturing Co., Dept. FP, 8701 Kinsman Rd., Cleveland 4, Ohio. When inquiring specify FP 3528 on handy form opposite last page.

Prevent shocks, arcing with circuit-breaking electric plugs

Uses: For prevention of electric shocks and arcing caused by ungrounded plugs and various receptacles.

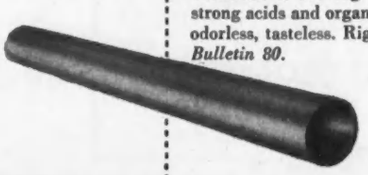
Features: Insulation has high-arc resistance and low-moisture absorption. Cable entrance is held watertight by rubber cable bushing clamped by combination gland unit and strain relief clamp.

Description: With screwdriver, one-piece interior assemblies can be interchanged. Plugs and receptacles feature pressure connector wiring and take any type and size portable cable up to 30 amp at 600v ac or 250v dc. Pressure connectors eliminate need for soldering.

(Series M54 plugs and receptacles are products of Crouse-Hinds Co., Dept. FP, Wolf & 7th North Sts., Syracuse, N.Y. . . . or for more information check FP 3529 on handy form opposite last page.)

TOUGH ACE-ITE PLASTIC PIPE

General-purpose moderately priced rubber-plastic pipe handles most common chemicals to 170 deg. F. . . . except few strong acids and organic solvents. Tough, odorless, tasteless. Rigid pipe ½" to 6". *Bulletin 80.*

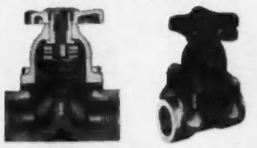


ACE chemical equipment

"more resistant to more corrosives"

From this "super-market" of corrosion-resistant equipment . . . backed by more than a century of engineering experience . . . you can select with confidence.

VALVES
for all-plastic piping systems



Trouble-free plastic diaphragm valves . . . choice of general-purpose ACE-ITE, ACE PARIAN (polyethylene) or ACE SARAN. Handles most corrosive chemicals and food ingredients. Sizes ½" to 2", 50 psi. at 77 deg. F. *Bulletins 80 and 351.*

ACE-HIDE ACID PAIL

Practically indestructible

Its made of a new rubber-plastic material that's tough, resilient, suitable for handling most acids and alkalis. 3-gal. size. Easy-pour, drip-proof spout. Also 1-qt. and 2-qt. dippers, hard rubber bottles, etc. Write for name of nearest dealer.

1001 USES *for ACE-FLEX Tubing*

Excellent chemical-resistant, all-purpose flexible plastic tubing. Sparkling clear, easy to clean, odorless, non-toxic, can be steam-sterilized. ⅛" to 1" ID. *Bul. 66.*

ACE rubber and plastic products

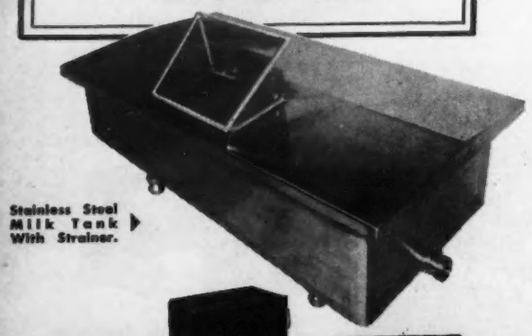
AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

When inquiring check FP 3530 opposite last page

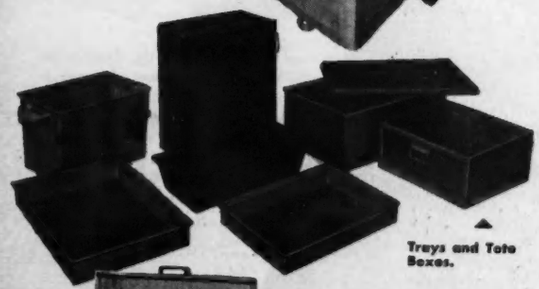
GLASCO

A Dependable Source

for FOOD PROCESSING METAL EQUIPMENT



Stainless Steel Milk Tank With Strainer.



Trays and Tote Boxes.

Dry Ingredient Container.

For almost half a century, many of the country's leading processors and commercial handlers of foods have looked to GLASCO for the finest quality metal handling equipment.

Specialists in the fabrication of precision-made equipment, Glasco offers a rare combination of modern plant facilities, trained and experienced craftsmanship, and thorough knowledge of metal characteristics. Quality of materials, workmanship, and finish is guaranteed.

Whether the equipment you require is simple or intricate in design, large or small, GLASCO will fabricate it precisely to your specifications.

It will pay you to consult Glasco when you need metal handling equipment.

Write for free folder "Metal Equipment for Processing and Handling of Foods"

GLASCO EQUIPMENT CORP.

Pioneer Fabricators of Stainless Steel Equipment

10 WAIT STREET — GLASCO PRODUCTS — PATERSON 4, N. J.

When inquiring check FP 3531 opposite last page

quickest way to move 80,000 bu of apples?

Comstock Canning Co. picks tractor shovel to transport fruit from stockpile to flume, keeps up production without interruption

Comstock Canning Company, Newark, N. Y., because of a bumper crop last season, had to dump 80,000 bu of apples, trucked in from surrounding orchards at a point 200 feet from the flume. To move the fruit at 750 bu per hour to maintain desired production, Comstock called in John A. Lagana, Palmyra, N. Y.

Pictures show how tractor shovel, operating 16 hours a day, picked up, transported, and dumped fruit without any lost motion or waste of manpower. Driver never had to leave his seat on the tractor shovel as he made trip after trip. Full buckets of apples — 30 bu, were picked up quickly and with an absolute minimum of maneuvering. Edge of bucket was covered to prevent bruising of fruit.

Torque converter and power shift transmission contribute to ease of operation. Even with low piled material the tractor shovel gets full buckets, an advantage that cuts costs.

Two finger-tip levers on steering column control power shifts in the transmission. One is for forward-reverse; the other for high and low speeds. Driver can make either shift while moving in either direction. He does not have to travel backwards to get maximum speed; also he has an unobstructed view of where he's going. Maximum

Flip a lever forward, step on the gas, dig in, then roll back with a heaped up bucket ready for trip

Load is quickly dumped — shovel speeds back for next trip to maintain pace that moves apples at rate of 750 bu per hour

bucket tip-back of 40° is obtained with bucket lip only 3½′ above ground level.

Boom and bucket controls are conveniently located at driver's right hand. Four-wheel brakes have dual pedals for right and left foot. Actuating brake operates by-pass valve in transmission to put full engine power on boom and bucket hydraulic cylinders.

(Michigan tractor shovel Model 125-A is built by Clark Equipment Co., Construction Machinery Div., Dept. FP, 528 Second St., Benton Harbor 9, Mich. . . . or for more information reader may simply check FP 3532 on handy form opposite last page.)

what is your **PULVERIZING** problem?

we'll test grind a sample for you

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Superfine

PULVERIZER

What is your milling problem—uniformity? fineness? Do you need increased output at a lower cost? Without obligation to you, we'll grind a sample of your material in our pilot plant, using a production model Schutz-O'Neill "Superfine" Pulverizer. We'll return your processed product with our Engineering Test Report giving exact data and including recommended Schutz-O'Neill equipment, methods and mill plans for your job.

This will give you full information on the versatility, particle size range and capacity of Schutz-O'Neill "Superfine" Pulverizers. Backed by more than 60 years of continuous manufacturing and field experience.

SCHUTZ-O'NEILL PILOT PLANT uses a standard production model 16" Superfine Pulverizer. Mill components on wall at left in photo provide up to 100 different pulverizing setups, with a range from 40 mesh to 5 microns.

Below are two typical pulverizing problems that were solved by SCHUTZ-O'NEILL

No. 1 Pulverizing 200-Mesh Cocoa Powder

THE PROBLEM: Continuous production of 99.5% minus 200-mesh medium and high butter fat cocoa powder. Material is heat sensitive and begins to cake at temperatures prevailing in dry material pulverizers.

THE TESTS: Schutz-O'Neill Company, based upon many years' experience in pulverizing cocoa powder, ran extensive pilot plant tests on cocoa powder containing 16% and 22% b.f. Exhaustive study of the problem, and evaluation of results of the pilot plant runs indicated continuous production of 200-mesh 16% b.f. powder was practical when temperature of feed material did not exceed 70° F. Continuous production of 200-mesh, 22% butter fat cocoa powder was practical with refrigeration equipment lowering temperature of grinding chamber to 35° F.

RESULT OF TESTS: Three major chocolate companies in the United States now use Schutz-O'Neill Superfine Pulverizers for high quality, extra fine breakfast cocoa production.

No. 2 400-Mesh Powdered Sugar

THE PROBLEM: Capacity production of extremely fine powdered sugar (all finer than 400-mesh) for one of the country's major sugar refiners.

THE TESTS: Schutz-O'Neill conducted a 24-hour continuous production run in their pilot plant with pulverizer set to produce sugar with a top size of 40 microns, for use in a new fondant-type sugar. Analysis of pilot plant material in sugar refiner's own laboratory and by impartial University specialist showed product to meet specifications. The mass mean particle size analyzed to average 12 microns, with 99.8% minus 40 microns.

RESULT OF TESTS: A Schutz-O'Neill 28" Superfine Pulverizer is now used for regular production of 400-mesh powdered sugar by this refiner.

WHAT IS YOUR PROBLEM? Write Schutz-O'Neill—take advantage of their 60 years experience in solving pulverizing problems.

Write Us:

Tell us the stock you want to pulverize, fineness, capacity desired; we'll send shipping instructions. Or, write for literature desired on Schutz-O'Neill Pulverizers, Granulators, Roller Mills, Sifters, Cyclone Collectors, Hammer Mills.

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ABP NBP

PUTMAN PP PUBLISHING

★ Courtesy of the publication MEDICAL ECONOMICS, creator of this copy, here adapted to FOOD PROCESSING

Industrial herbicide's effectiveness suggests agricultural applications

For broadleaf weeds, grasses; exhibits extended period of persistence in the soil

Herbicide, at present available in limited supply to industry for non-agricultural applications, has demonstrated its effectiveness in control of both broadleaf weeds and grasses. It exhibits an extended period of persistence in the soil.

The coined name for the active ingredient in the formulated product is erbon, the chemical name 2-(2,4,5-trichlorophenoxy)-ethyl-2, 2- dichloropropionate.

General effect immediately following application, or within the first few days, is a slight browning, wilting of leaves. During the next two or three weeks vegetation in the sprayed areas becomes completely brown. Most weed and grass species are susceptible to erbon. Good kills have been obtained on Bermuda grass, Johnson grass, quack grass, dandelion and ragweed.

It is necessary to have adequate rainfall to carry the chemical into the soil. On the other hand, excessive rainfall will reduce effectiveness.

Formulation in which erbon is available contains four lb of erbon (technical) per gal. It is readily emulsified with water or may be diluted with oil. Applied at about 50 lb/acre in solution, herbicide acts to kill all vegetation for about a season. There is little hazard to operator if the diluted spray is used under prescribed conditions and there is no significant hazard to livestock.

(Baron — emulsifiable formulation of erbon is available for experimental use from The Dow Chemical Company, Dept. FP, Midland, Mich. . . . or for more information check FP 3534 on handy form opposite last page.

Slugs, snails controlled with metaldehyde

How to prepare metaldehyde as a dust, spray, or in baits to control snails and slugs is discussed in 2-page data sheet. These pests attack young seedlings, vegetables, mushrooms, and the more succulent parts of many plants.

"Metaldehyde, TDS #2" is published by Agricultural Chemical Sales, Commercial Solvents Corp., Dept. FP, 260 Madison Ave., New York 16, N. Y. When inquiring specify FP 3535 on handy form opposite last page.

NEXT MONTH —

Potatoes stored without bruising or crushing; filled boxes stack two high — each holds 2200 lb

BRIEFS from contemporary publications

Here's a quick look at articles appearing in other technical and business magazines

New method for measuring rancidity and reversion

A new method for measuring deterioration in fats and oils correlates well with taste panel results. A sample of the fat is held in a hot water bath and dry nitrogen bubbled through it for two hours. The gas coming out is passed through a dry ice trap, the condensate reacted with 2,4-dinitrophenylhydrazine, and the color of the reaction product measured. 3 pages, 7 tables. (*"Journal of the American Oil Chemists' Society", June* 1955, *page* 341)

Fish, frozen in new medium, keep better in storage

In a new Norwegian procedure, fish are frozen in blocks in a medium of fluid. The fluid is dispersion of sodium alginate, salts, and lactic acid in water. Proportions are such that the medium has a freezing point below that of the fish but forms a protective gel around the fish. By this method, even fat fish or fillets can be held without highly protective packaging and without oxidative deterioration. 1 page. (*"Refrigerating Engineering", July* 1955, *page* 57)

Compares phenolic antioxidants in products with lard

Butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), propyl gallate, and combinations of these with each other and with citric acid were compared in protective value for lard and for pastry, crackers, and potato chips made with the lard. The various effects are shown in relation to the concentrations of antioxidants used in each case. 5 pages, 1 table, 8 graphs. (*"Journal of the American Oil Chemists' Society," July* 1955, *page* 386)

Fast moisture test on cocoa

A chocolate manufacturer uses the "moisture balance" based on fast drying with infrared radiation to follow moisture content from cacao beans through chocolate liquor to cocoa. Cocoa powder and chocolate liquor can be run in 6 minutes; crushed, unroasted nibs take 20 minutes. 1 page, 1 photo. (*"Manufacturing Confectioner," May* 1955, *page* 38)

Study on bread freezing

A study of temperature, air velocity, and loaf position (direction of air flow) in the freezing of bread gives detailed guidance in choice of proper conditions for production. 5 pages, 10 graphs. (*"Food Technology, July,* 1955, *page* 342)

Transparent rigid package

A transparent package of vinyl plastic has worked quite well for conserved fruits. In the form of a flat tray with snap-on lid, it gives adequate moisture protection but is easily reclosable. The user has developed automatic filling and closing equipment to handle 20-30 packages per minute with higher speeds possible. 2 pages, 3 photos. (*"Modern Packaging", July* 1955, *page* 82)

Charts help palletizing

A pair of charts has been developed for a standard 40 x 48-in. pallet which guides selection of container sizes and stacking patterns to make most efficient use of the pallets. Included are 108 stacking patterns for containers ranging from 5-31 in. in length and 4-22 in. in width. 4 pages, 3 charts. (*"Modern Materials Handling", July* 1955, *page* 76)

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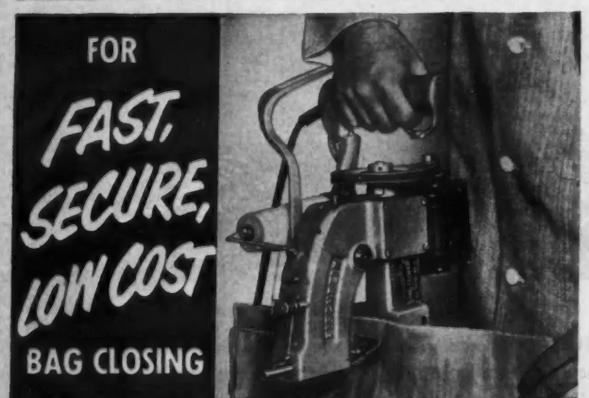
When inquiring check FP 3537 opposite last page



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Please note that the illustration of this screen shows a marcel type of construction. It was specially designed for rough and abrasive type of materials, to give long life, non-blinding operation and still present a flat surface for materials to wipe the opening CLEAN. The same dewatering efficiency is prevalent and we might add that this screen was also designed for operations where slivers of materials passing through are objectionable in the end product. Made in all sizes and shapes wherever applicable to higher and productive efficiency.

Wedge-Wire CORPORATION
GAS STREET AT NICKLE PLATE R. R., WELLINGTON, OHIO

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Food Regulations

(*Continued from page* 15)

Dairy Plants: Comments are due Sept. 9 on proposed revision of minimum specifications for approved plants that manufacture, process, and package dairy products under USDA's Inspection Service. Proposed changes cover definition of terms, clarification of the purpose of specifications, and minimum requirements — for premises, plant, facilities, equipment, and regulations involving personnel, cleanliness, and health. Proposed revisions include specifications for raw milk and farm-separated cream; packaging, official identification, storage, grading and inspection requirements; rules governing official identification and coordination with State regulations and specifications. Inspection and grading is provided upon request with costs borne by the company or organization using the service.

FDA Standards

List of foods for which standards have been established is available from Food and Drug Administration, Washington 25, D. C.

Cheese: Government has not yet acted on petitions filed by Swift & Co. and also United Cheese Co., Chicago, to use antimycotics with certain cheeses to help fight mold. Swift requests permission to use sodium and calcium propionate as an optional ingredient; United Cheese to employ sorbic acid inside wrappers. Still pending also is official action on a petition filed for Standards of Identity for Danish Samsoe cheese. Comments were due Aug. 24 on a California Cheese Association request to make "Monterey jack cheese" an alternate designation for "Monterey cheese". An official order on the proposal is expected soon.

Pesticides: First committee of scientists has been nominated by the Academy of Sciences and appointed by FDA under the pesticide law to consider the amount of residue that may be safely left on raw food products. Question involves a pesticide going under the trade name of Aramite and produced by U. S. Rubber Co. In response to a company petition, FDA ruled that tolerance for the pesticide should be "Zero" — that is, while it might be used on a crop, no residue could be permitted to remain. FDA says that tests show cancer-producing effects in test animals when the pesticide is employed at "high feed levels". What would be the result at a lower use level, comparable with the residue that might remain on a crop, FDA does not know. Result has been an amended petition by U. S. Rubber asking for consideration of the problem by the committee of scientists. Effective date of the pesticide law as it applies to Aramite, meantime, has been postponed until Sept. 13, at which time there may be a decision by the committee. Such postponement is now possible in the case of any individual pesticide, following government annoucement that it would consider such delays in application of the law.

Sweeteners: Report on safety of artificial sweeteners used in food may be released about the time you read this by the Food Protection Committee of the National Research Council. It will be a general report on sweeteners, a staff member of the committee said. The report will not be official in the sense that FDA will be bound by it, but the agency is expected to use it as a guide in proposing standards for artificially sweetened foods. The report may be the basis, for example, of a still-pending government action on the proposal of the National Canners Association: Namely, for Standards of Identity for five canned dietetic foods to include saccharin and Sucaryl.

The Convention and Exhibit Schedule will be found on page 23 of this issue

discussed in this issue PROCESSES, EQUIPMENT, and MATERIALS

A

Acetate Fiber Tapes 51
Additives, Dough 56
Air Conditioned Smokehouses .. 34
Air Remover 90
Aluminum Foil Labels 78
Aluminum, Ham Package 80
Aluminum Trailers, Data on .. 69
Antifoam Emulsion 48
Antioxidants 54, 56
Aseptic Blast and Food 26

B

Bacteria Analysis, Water 46
Bag Closers 86, 104
Bag Sealing 82
Bags, Film, Automatic Tying .. 83
Bearings, Ball 87
Belt Conveyors 75, 85
Belt Repair, Conveyor 72
Belts, Conveyor 70
Belts, Metal Conveyor 88, 90, 98
Beverages, Canned, Corrosivity 46
Blo-flow Aerating Units 39
Bins, Storage, Horizontal 87
Biscuits, Dough Additive 56
Bottle Cleaners 79
Boxes, Corrugated 22, 77, 110
Bread Packages, Zip-open Twin 80
Brinemakers 20
Bulk Sweetener Handling System 19
Bundling 2, 3, 4, & 6 Cans 82

C

Cabinets, Stainless Laboratory .. 49
Cake Mixes, Dough Additive 56
Camera Spectrograph 49
Can Flangers, Round 81
Cans, Dented, Straightener 85
Cans, Multiple Bundling 82
Cans, "Tall" Soft Drink 80
Carbonated Beverages, Cap-top Can 80
Cartoners, Can Bundling 82
Cartons, Folding 22, 83
Casters 75
Cellulose Film, Half-ham Packaging 50
Chains, Roller 93
Chemistry, Organic, Text 84
Chlorination, In-plant 87
Chocolate Bit Feeders, Ice Cream 52
Cleaning, Industrial 84
Cleansers 16, 97
Cleaners, Bottle 79
Cleaners, Steam-jet 108
Clean-up, Centralized Pressure System 94
Closures, Glass 80
Cloth, Wire 88
Coatings, Roof 99
Code Daters 82
Coenzymes 64
Coloring Agents, Yellow 55
Compressor-booster Refrigeration Load Control 32
Concentrates, Flavor, Homogenizer 88
Consultants, Directory of 64
Contactors 39
Containers, Polyethylene Drum Liner 82
Containers 22, 77, 85, 110
Controllers, Temperature 35
Controllers, Temperature & Humidity 37, 41
Controllers, Vacuum & Pressure 43
Controls 32, 38, 84
Conveyor Belting 75
Conveyor Belt Repair 72
Conveyors 66, 68, 72, 74
Conveyors, Elevating 70
Conveyors, Pan Type 70
Conveyors, Roller 85
Conveyors, Screw 71
Conveyors, Screw-lift 72
Cooler Humidity Controls 48
Coolers 5
Corn Syrup 19
Corrosivity of Canned Beverages 46
Cottage Cheese Filling Machine 83
Counters 36, 39
Counting Systems, Electric 69
Creams, Skin Protection 65
Cups, Fiber, Multiple Carton 80
Curing Equipment, Pickle 47

D

Deaerators 90
Dented Can Straighteners 85
Dermatitis Controls 95
Detergents, Chlorinated 97
Detergents, Industrial 84
Dietetic Frozen Desserts 56, 64
Doors, Freezer 92
Drives, Rope 61
Drum Liners, Polyethylene 82
Drum Pumps 73
Drums, Stainless 90
Dryers 5
Dryers, Spray 8
Dry-ice Truck Units 74
Drying Research Laboratory 62
Drying Systems, Spray 92
Dust Collectors 97

E

Ejectors, Tube Bundle 96
Electrostatic Smoking, Meat Products 24
Elevators 82
Emulsifiers 18
Enzymes 54, 64
Extraction Solvents 85

F

Fabrication, Metal 88, 100
Fans, Exhaust 98
Fats, Oil Purifier 53
Feeders, Chocolate Bit, Ice Cream 52
Filling Machines 78, 82, 83, 89, 92, 108
Films, Vacuum-packing 76
Filter Aids, Dicalite 105
Filters 38, 46, 97
Filter Sheets, Asbestos 38
Fire Extinguishers 74
Fittings, Plastic 108
Fittings, Sanitary 96
Flange Ball-bearing Unit 87
Flangers, Round Cans 81
Flanges, Plastic 108
Flavor Concentrate Homogenizer 88
Flavor Crystals 62
Flavors 17, 55, 65, 109
Flavors, Hermetically Sealed .. 57
Flavors, Imitation 62
Flexible Hose 97
Floor Maintenance Equipment 107
Floor Patch & Resurfacer 108
Flour, Mixing Time 65
Foam Dispersing Agents 48
Foil Labels 78
Foils, Ham Package 80
Food Irradiation 62
Food Laws, Special 84
Freezer Doors 92
Freezing, Ice Cream Novelties 66

G

Gages, Liquid Level 36, 86
Gaskets, Teflon 107
Gas Removers 90
Gearmotors 84
Generator, Electron Beam 52
Glass Containers 80
Gloves, Industrial 86, 98
Glycerine, Synthetic 2
Granulators 101

H

Hams, Package 50, 80
Heaters, Electric 97
Heat Exchangers 71
Heat Exchanger Tubes 96
Herbicides 102
Homogenizers, Flavor Concentrate 88
Hose, Plastic-metal Combination 97
Hotels 36
Humidity Controllers, Meat Cooler 48

I

Ice Cream, Chocolate Bit Feeder 52
Ice Cream, Multiple-cup Carton 80

DICALITE FILTERCAKE

This unretouched photograph of a section through an actual Dicalite filtercake shows the even dispersion of unwanted impurities throughout the cake and how easily the clean precoat peels from the screen or cloth. Inset shows surface magnified 75 times.

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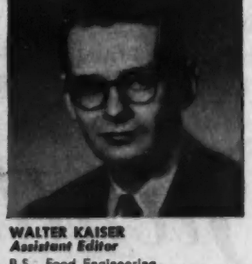

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Indicator-recorders, Temperature 44
Indicators, Bin Level 39
Industrial Cleaning 84
Infra-red Spectrophotometers 85
Inks, Stencil 39
Instruments, Mechanical 43
Insulation, Low Temperature .. 6
Insulation, Pipe, Snap-on 98
Irradiation Facility 61
Irradiation, Grain & Potatoes .. 62
Irradiation Prospects for Foods 58

K

Kettles, Corrosion-resistant 60
Kraft Bags and Wrappings 83

L

Labels, Aluminum Foil 78
Laboratory Cabinets 49
Lab Water Bacteria Analyzers .. 46
Ladders, Aluminum 22
Lavatories, Sanitary 99
Laws, Food, Special 84
Lettuce Wrapper, Automatic .. 86
Liquid Level Gages 86
Loaders, Automatic Pallet 74
Load Palletizer 67

M

Magnets 63
Maintenance Solvents 85
Masonry Preservation 99
Meat Cooler Humidity Controls 48
Meat Tenderizer, Liquid 57
Meats, Continuous Smoke Process 24
Meats, Irradiation Prospects 58
Meats, Prewrapping, Saran 78
Metaldehyde 102
Meters, Liquid 42, 64
Mills 101
Mixers 91, 93
Mixing Time, Flour 65
Moisture Registers 38
Monoglycerides 18
Monosodium Glutamate 8
Mortar, Pre-mixed 98
Motors 84

N

Nuclear Blast and Food 26

O

Oils, Fats Purifier 53
Operation Cue and Food 26
Organic Chemistry Text 84
Organic Solvents 85

P

Packaging Equipment 84
Packaging Machine, Fills, Forms, Seals 78
Packaging Materials, Polyethylene 81
Packing, Teflon 107
Pails, Rubber-plastic 99
Paints, Rust-inhibitive 104
Palletizer 67
Pallets, Plastic 75
Pans, Corrosion-resistant Cooling and Vacuum 60
Paperboard 83
Paper, Wrapping 76
Parchment, Vegetable 76
Peanut Handling, Cost Saving .. 63
Pentosans in Flour 65
Perimeter Insulation 6
Photoelectric Controls 84
Pickle Cutting Equipment 47
Pipe Covering 6
Pipe Insulation, Snap-on 98
Pipes, Plastic 99
Pipes, Rubber 99
Plastics, Tough Polyethylene 65
Plate & Frame Sheets 58
Plugs, Arc-resistant 99
Polyethylene 65, 81, 97
Polyethylene Drum Liners 82
Powder, Tomato, Vacuum-dried 64
Prepackaging, Vacuum-sealing .. 76
Preservation, Masonry 99
Pre-wrapping Meats, Saran 78
Processing Equipment 100
Processing Equipment, Corrosion-resistant 60
Production Control Services 49
Propylene Glycol 55
Protein Concentrates 56
Protein Derivative, Vegetable .. 8
Pulverizers 101
Pumps 73, 91, 96
Pump Troubles, Chart 98
Purifiers, Fats and Oils 53

R

Radiation of Grain & Potatoes .. 62
Radiation Sterilization 58
Radiation, Ultra-violet 65
Receptacles, Electric 99
Refractometers 43
Refrigeration 86
Refrigeration and Irradiation 58
Refrigeration Control Systems .. 64
Refrigeration Load Control, Automatic 32
Repairs, Conveyor Belt 72
Research & Consultation 49
Resins, Polyethylene 85

S

Salmon, Smoking 34
Salt 2, 15, 20, 56
Sanitation, Centralized Clean-up System 94
Sanitizing Detergents 97
Screens, Dewatering 104
Screens, Pickle 48
Sealing, Bag 82
Sealing Packages 78
Seals, Rotary Mechanical 91
Seasonings 3, 8, 59
Shovel, Tractor 100
Sizing Screens 104
Skin Protective Creams 65
Smokehouse, Air Conditioned .. 34
Smoking Meats, Continuous Process 24
Snail Control 102
Solvents, Extract 51
Solvents, Organic 85
Space Utilization, Warehouse .. 68
Spectrograph 49
Spectrophotometer, Infra-red 85
Spray Drying Systems 92
Sprinklers, Automatic 103
Sprockets 93
Stabilizers, Dietetic Frozen Dessert 56
Stapling Machine, Automatic .. 81
Steam, Centralized Cleaning 94
Steel, Stainless 49
Stencil Covering 39
Sterilization, Irradiation for 52
Stitching Equipment, Steel Wire 79
Storage Bins, Horizontal 87
Straighteners, Dented Cans 85
Strapping, Steel 72
Sugar Handling, Bulk 68
Sweeteners, Dietetic Frozen Dessert 56
Sweeteners, Liquid 19
Sweeteners, Non-caloric 9

T

Tanks, Cooling, Mixing, Storage 60
Tapes, Bread Loaves 51, 79, 80
Tenderizers, Meats 57
Testers, Moisture 38
Thermometers 43, 44
Ties, for Film Bags 85
Tomato Powder, Continuous Production 64
Tractor Shovels 100
Trailer Linings, Plastic 73
Traps, Steam 44
Truck Attachments, Lift 73
Truck Refrigeration 74
Trucks, Extension Fork Lift 69
Trucks, Fork 66, 71, 75
Trucks, Hand 72
Trucks, Lift 70, 73, 75, 86
Trucks, Multi-stop 68
Trucks, Refrigerator 67
Trucks, Stainless 90
Tube Bundle Ejectors 96
Tubes, Sanitary 53, 96
Tubing, Plastic 99
Tubs, Stainless 90

U

Ultra-violet Radiation 65

V

Vacuum Closures 80
Vacuum-dried Tomato Powder 64
Vacuum Packaging, Flexible Bags 76
Vacuum Packaging, Half Hams 50
Valves 23, 64, 96
Valves, Control 36
Valves, Diaphragm 87, 99
Vegetables, Irradiation Prospects 58
V-belts 61
Vibrators 70

W

Water Bacteria Analyzer 46
Waterproofing Buildings 99
Weed Killers 102
Wheels 75
Weighing Machinery 82
Whey, Sweet Dairy 21
Wrapping Machines 78, 80, 86

Y

Yellow Coloring Agents 55

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Acme Steel Company, Acme Steel Products Division 79
Agency-Fuller & Smith & Ross Inc.
Ajinomoto Co., Inc. 8
Agency-Gotham-Vladimir Advertising, Inc.
Aluminum Ladder Company 22
Agency-Peter Baycura and Associates
American Hard Rubber Company 99
Agency-W. L. Towne Advertising
Anetsberger Brothers, Inc. 48
Agency-Kennedy & Company
"Automatic" Sprinkler Corporation of America 103
Agency-The Robert A. Joyce Company
Ayerst Laboratories 65
Agency-Cortez F. Enloe, Inc.

B

Babcock & Wilcox Company, The, Tubular Products Division 53
Agency-O. S. Tyson and Company, Inc.
Bakelite Company, A Division of Union Carbide and Carbon Corporation 81
Agency-J. M. Mathes Incorporated
Baker-Raulang Company, The .. 66
Agency-G. M. Basford Company
Barnes Company, W. F. & John 89
Agency-Roy F. Cratty
Bausch & Lomb Optical Co. 45
Agency-Ed Wolff & Associates
Bin-Dicator Co., The 39
Agency-Clark & Bobertz, Inc.
Bowser, Inc. 64
Agency-Willis S. Martin Company

C

Cambridge Wire Cloth Co., The 88
Agency-Emery Advertising Corporation
Clark Equipment Company, Industrial Truck Division 73
Agency-Marsteller, Rickard, Gebhardt and Reed, Inc.
Cleveland Vibrator Co., The .. 70
Agency-Wellman, Buschman & Hines, Inc.
Consolidated Packaging Machinery Corp. 82
Agency-Baldwin, Bowers & Strachan Inc.
Corrigan Co., J. C. 68
Agency-Doremus & Company, Inc.
Counsel Machine Company, Inc. 70
Agency-Rea, Fuller & Company, Inc.
Crane Co. 23
Agency-The Buchen Company
Crucible Steel Company of America 49
Agency-G. M. Basford Company
Cyclone Fence Department, American Steel & Wire Division, United States Steel Corporation 98
Agency-Batten, Barton, Durstine & Osborn, Incorporated

D

Darnell Corporation, Ltd. 75
Agency-Rhea Advertising Service
Day Company, The 97
Agency-Dwyer & Devoy
Diamond Crystal Salt Co. 56
Agency-Benton & Bowles, Inc.
Dicalite Division, Great Lakes Carbon Corporation 105
Agency-Darwin H. Clark Co.
Distillation Products Industries, Division of Eastman Kodak Company 18
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Dodge & Olcott, Inc. 3
Dow Chemical Company, The 6, 7, 55
Agency-MacManus, John & Adams, Inc.
DuPont De Nemours & Co., (Inc.) E. I., Polychemicals Dept. 85
Agency-Batten, Barton, Durstine & Osborn, Incorporated
Dupps Company, The 99
Agency-Leonard M. Sive and Associates
Durant Manufacturing Co. 39
Agency-Keck Advertising

E

Edmont Manufacturing Co. 98
Agency-Maurice Mullay, Inc.
Electric Auto-Lite Company, The, Instrument and Gauge Division 44
Agency-J. C. Bull, Inc.
Eriez Manufacturing Company 63
Agency-Gotham-Vladimir Advertising, Inc.
Ertel Engineering Corporation .. 38
Agency-W. N. Hudson Advertising

F

Fischbein Company, Dave 104
Agency-Fischbein Advertising
Flavorex Co., Inc. 65
Agency-The Roman Advertising
Flexrock Company 108
Agency-Walter S. Chittick Company
Florasynth Laboratories, Inc. 65
Agency-Co-Ordinated Advertising Corp.
Food Machinery and Chemical Corporation, Canning Machinery Division 92
Agency-The McCarty Company
Foxboro Company, The 35
Agency-Horton-Noyes Company
Frazier and Son 82
Agency-Mercready, Reid, Handy and Van Denburgh
Frick Co. 90
Agency-Waynesboro Advertising
Fritzsche Brothers, Inc. 17

G

Gair Company, Inc., Robert 83
Agency-James Thomas Chirurg Company
Gates Rubber Company, The .. 61
Agency-Harold Walter Clark, Inc.
Gaylord Container Corporation 22
Agency-Oakleigh R. French & Associates
General American Transportation Corporation, Louisville Drying Machinery Unit 5
Agency-Weiss and Geller, Inc.
General Electric Company, X-Ray Department 52
Agency-Klau-Van Pietersom-Dunlap, Inc.
Germantown Manufacturing Company 64
Givaudan Flavors, Inc. 62
Agency-Hazard Advertising Company
Glasco Equipment Corp. 100
Agency-S. M. Ferrer Advertising
Grinnell Company, Inc. 87
Agency-Horton-Noyes Company

H

Hayssen Mfg. Company 78
Agency-The Cramer-Krasselt Co.
Henszey Company 8
Agency-Keck Advertising
Hild Floor Machine Co. 107
Agency-Tim Morrow Advertising
Hoerner Boxes, Inc. 77
Agency-W. D. Lyon Company
Hope Machine Co. 108
Agency-Lee Keeler, Inc.
Hotel Pittsburgher 36
Agency-Bachman, Kelly & Trautman, Inc.
Howell Electric Motors Company 84
Agency-The Iaqua Company
Hudson-Sharp Machine Co. 80
Agency-Jack C. Wemple Advertising

I

International Salt Company, Inc., Industrial Division 20
Agency-Scheideler-Beck & Werner, Inc.

L

Ladish Co., Tri-Clover Division 96
Agency-Russell T. Gray, Inc.

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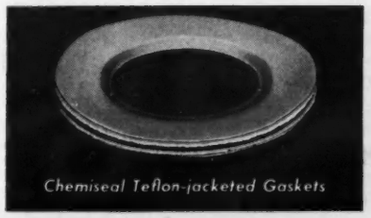

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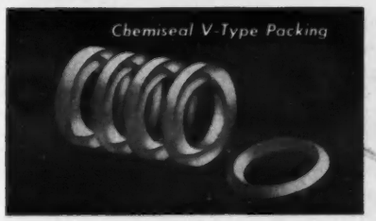

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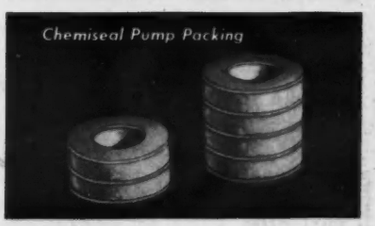

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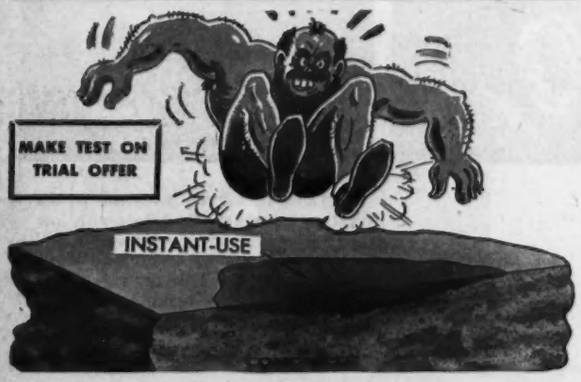

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Agency-Chapman-Nowak & Associates, Inc.
Lamson-Mobilift Corporation 75
Agency-Chapman-Nowak & Associates, Inc.
La Porte Mat & Mfg. Co. 90
Agency-Charles Elwyn Hayes
Lee Metal Products Co., Inc. .. 60
Agency-Walker & Downing
Lift Trucks Incorporated 70
Agency-The Bohnett Company
Link-Belt Company 93
Agency-Klau-Van Pietersom-Dunlap, Inc.
Liquidometer Corp., The 36
Agency-Lucerna Company
Louisville Drying Machinery Unit, General American Transportation Corporation .. 5
Agency-Weiss and Geller, Inc.

M

Madsen Works, Subsidiary of Baldwin-Lima-Hamilton Corporation 44
Agency-Frank Barrett Cole Advertising
Magnus, Mabee & Reynard, Inc. 59
Master Builders Co., The, Subsidiary of American-Marietta Company 98
Agency-The Bayless-Kerr Co.
Mateer Co., G. Diehl 78
Agency-The Buckley Organization
Mercoid Corporation, The 38
Metzgar Conveyor Co. 74
Agency-H. P. Bundy Advertising Service
Minnesota Mining and Manufacturing Company 51
Agency-Batten, Barton, Durstine & Osborn, Incorporated
Mixing Equipment Co., Inc. .. 91
Agency-Charles L. Rumrill & Co., Inc.
Moisture Register Co. 38
Agency-Willard G. Gregory & Company
Morton Salt Company, Industrial Division 15
Agency-Needham, Louis and Brorby, Inc.

N

Neptune Meter Company 42
Agency-W. L. Towne Advertising
Niagara Blower Company 86
Agency-The Moss-Chase Company
Norda, Inc. ..... 3rd Cover
Agency-Fred Gardner Company, Inc.

O

Oakite Products, Inc. 16
Agency-Marstellar, Richard, Gebhardt and Reed, Inc.

P

Pantex Manufacturing Corporation 108
Agency-Horton-Noyes Company
Paterson Parchment Paper Company 76
Agency-Grant & Wadsworth, Inc.
Phillips & Co., H. A. 64
Agency-Glenn-Jordan-Stoetzel Inc.
Pioneer Rubber Company, The 86
Agency-Carr Liggett Advertising, Inc.
Post Machinery Co., Electronic Products Division 36
Agency-Cooney & Connor Advertising
Powers Regulator Co., The 41
Agency-Symonds, MacKenzie & Co., Inc.
Putman Publishing Company 42, 44, 102, 106

R

Reynolds Ink, Inc. 39
Agency-Henry T. Bourne Advertising
Rohm & Haas Company 54
Agency-Arndt, Preston, Chapin, Lamb & Keen, Inc.

S

Salem Brosius, Inc. 46
Agency-Bond & Starr, Inc.
Sargent's Sons Corp., C. G., Industrial Dryers Division 62
Agency-Louis Robert Korn & Co., Inc.
Schutz O'Neill Company 101
Agency-Foulke Agency, Inc.
Screw Conveyor Corporation 72
Agency-R. J. Skala Company
Shell Chemical Corporation ..... 2nd Cover
Agency-J. Walter Thompson Company
Simplicity Engineering Company 48
Agency-Price, Tanner & Willox, Inc.
Sparkler Manufacturing Co. 46
Agency-Kreicker & Meloan, Inc.
Staley Mfg. Co., A. E. 19
Agency-Ruthrauff & Ryan, Inc.
Standard Casing Co., Inc., The 90
Agency-Bresk Advertising
Standard Conveyor Company 72
Agency-Klau-Van Pietersom-Dunlap, Inc.
Steelcote Mfg. Co. 104
Agency-Wesley K. Nash Co.
Stephens-Adamson Mfg. Co., Standard Products Division .. 74
Agency-Connor Associates, Inc.

T

Taylor Instrument Companies .. 37
Agency-Batten, Barton, Durstine & Osborn, Incorporated
Tri-Clover Division, Ladish Co. 96
Agency-Russell T. Gray, Inc.
Tropical Paint Company, Subsidiary of Parker Rust Proof Co. 99
Agency-The Fred M. Randall Company
Tube Turns Plastics, Inc. 108
Agency-The Griswold-Eshleman Co.
Twin Tilt Truck Co. 72
Agency-Jennelles, Advertising

U

Union Bag & Paper Corporation, Corrugated Container Division .....4th Cover
Agency-Smith, Hagel & Snyder, Inc.
Union Carbide and Carbon Corporation, Bakelite Company Division 81
Agency-J. M. Mathes, Incorporated
Union Special Machine Company 86
Agency-Armstrong Advertising
United States Gasket Company ..107
Agency-The Michener Company
Urschel Laboratories Inc. 47
Agency-Roy D. Zeff & Associates

V

Van Ameringen-Haebler, Inc. .. 57
Agency-Oliver-Beckman, Inc.

W

Wallace & Tiernan Incorporated 87
Agency-Branstator Associates, Inc.
Wedge-Wire Corporation 104
Agency-Herb W. Buerger
West Disinfecting Company 95
Agency-G. M. Basford Company
Western Condensing Company .. 21
Agency-Klau-Van Pietersom-Dunlap, Inc.
Western Precipitation Corporation 71
Agency-Dozier-Eastman and Company
Weston Electrical Instruments Corporation 43
Agency-G. M. Basford Company
White Motor Company, The .. 67
Agency-D'Arcy Advertising Company
Wiegand Company, Edwin L., Industrial Division 97
Agency-Ketchum, MacLeod & Grove, Inc.
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Y

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☐	3386	Acetate Fiber Tape
☐	3387	Irradiation for Sterilization
☐	3388	Continuous Smoking of Meats
☐	3389	Chocolate Bit Feeder for Ice Cream
☐	3390	Fats and Oils Purifier
☐	3391	Stainless Tubing
☐	3392	Food Enzymes (state which)
☐	3393	Applying Antioxidants
☐	3394	Yellow Coloring Agents
☐	3395	Flavors
☐	3396	Propylene Glycol
☐	3397	Flake Butter Salt
☐	3398	Feed Antioxidant
☐	3399	Dough Additives
☐	3400	Dietetic Frozen Dessert ingredient
☐	3401	Liquid Meat Tenderizer
☐	3402	Hermetically Sealed Flavors
☐	3403	Concentrated Spice Seasoning
☐	3404a	Corrosion-resistant Kettles
☐	3404b	Corrosion-resistant Cooling and Vacuum Pans
☐	3404c	Cooling, Mixing, Storage Tanks
☐	3405	V-belts
☐	3406	Flavors
☐	3407	Food Irradiation Equipment
☐	3408	Dryers
☐	3409a	Plate Magnet
☐	3409b	Pipeline Trap
☐	3409c	Magnetic Drum
☐	3410	Refrigerant Valves
☐	3411	Continuous Vacuum Drying
☐	3412	Dietetic Frozen Dessert (state formula)
☐	3413	Liquid Meters
☐	3414	Fruit Flavors
☐	3415	Skin Protective Cream
☐	3416	Tough Polyethylene
☐	3417a	Artificial Garlic Flavor
☐	3417b	Coffee Flavors
☐	3417c	Maple Flavor Base
☐	3418	Gas Fork Truck (state capacity)
☐	3419	Mechanized Handling of Ice Cream Novelties
☐	3420	Palletizer
☐	3421	Refrigerator Truck
☐	3422	Conveyor Systems
☐	3423	Multi-stop Trucks
☐	3424	"How to Double Warehouse Space"
☐	3425	Contactor and Counter
☐	3426	Aluminum Trailer Savings Chart
☐	3427	Extension Fork Lift Truck
☐	3428	Air or Electric Vibrators
☐	3429	Cross-cut Surface Belts
☐	3430	Pan Type Conveyors
☐	3431	Elevating Conveyor
☐	3432	Lift Trucks
☐	3433	Fork Truck
☐	3434	Screw Conveyor Heat Exchanger
☐	3435	Gravity & Power Conveyors
☐	3436	Self-vulcanizing Rubber Repair Material
☐	3437	Steel Strapping Guide
☐	3438	Screw-lift Conveyor
☐	3439	Hand Trucks
☐	3440	Drum Pump
☐	3441	Flexible Plastic Trailer Lining
☐	3442a	Lift Truck
☐	3442b	Lift Truck Attachments
☐	3443	Automatic Pallet Loaders
☐	3444	200 lb Dry-ice Bunker
☐	3445	Fire Extinguisher
☐	3446	Troughing Idler
☐	3447a	Gravity Conveyor
☐	3447b	Power Belt Conveyor
☐	3447c	Live-roller Conveyor
☐	3447d	Floor-to-floor Conveyor
☐	3448	Casters & Wheels
☐	3449	Reinforced Plastic Pallets
☐	3450	Grease-resistant Conveyor Belts
☐	3451a	Sit-down Lift Truck
☐	3451b	Stand-up Lift Truck
☐	3452	Vegetable Parchment (state application)
☐	3453	Vacuum-packs, Seals
☐	3454	Corrugated Boxes
☐	3455a	Packaging Machine
☐	3455b	Wrapping Machine
☐	3456	Aluminum Foil Labels
☐	3457	Saran for Meat Pre-wrapping
☐	3458	Filling Machines
☐	3459	Bottle Cleaner
☐	3460	Industrial Tape Samples
☐	3461	Steel Wire Stitching Equipment
☐	3462	Wrapping Machines (state problem)
☐	3463	Vacuum Glass Closure
☐	3464	9 oz Soft Drink Can
☐	3465	Multiple-cup Ice Cream Carton
☐	3466	Zip-open Bread Package
☐	3467	Automatic Stapler
☐	3468	Round Can Flanger
☐	3469	Polyethylene for Packaging
☐	3470	Bag Sealing
☐	3471a	Net Weigher & Elevator
☐	3471b	Floor Model Volumetric Filler
☐	3471c	Bench Model Volumetric Filler
☐	3471d	Bench Model Net Weigher
☐	3471e	Filler-conveyor Combination
☐	3472	Bundling 2, 3, 4, & 5-can Packs
☐	3473	Container Imprinter
☐	3474	Polyethylene Drum Liner
☐	3475	One, Two-spout Filling Machine
☐	3476	Tie-closes Bags Mechanically
☐	3477	Cottage Cheese Filling Machine
☐	3478	Shipping Container
☐	3479	Gearmotors
☐	3480	Photoelectric Controls
☐	3481	Automatic Packaging Equipment
☐	3482	Organic Solvents Booklet
☐	3483	Dented Can Straightener
☐	3484	Belt, Gravity Conveyors
☐	3485	Infra-red Spectrophotometer
☐	3486	Polyethylene Coatings (see coupon)
☐	3487	No-frost Refrigeration
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☐	3489	Liquid Level Gages
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☐	3492	Diaphragm Valve
☐	3493	Automatic Lettuce Wrapper
☐	3494	Two-bolt Ball Bearing Unit
☐	3495	Horizontal Storage Bins
☐	3496	In-plant Chlorination
☐	3497a	Wire Mesh Conveyor Belt
☐	3497b	Wire Cloth
☐	3497c	Metal Fabrication
☐	3498	Flavor Concentrate Homogenizer
☐	3499	Filling Machines (state model)
☐	3500	Shell-ice Maker
☐	3501	Deaerator
☐	3502a	Stainless Drums
☐	3502b	Stainless Trucks
☐	3502c	Stainless Tubs
☐	3502d	Stainless Equipment
☐	3503	Flexible Steel Conveyor Belting
☐	3504	Corrosion-resistant Pump
☐	3505a	Turbine & Paddle-type Top-entering Mixer
☐	3505b	Propeller-type Top-entering Mixer
☐	3505c	Side-entering Mixer
☐	3505d	Mixing Data Sheet
☐	3505e	Electric & Air Driven Portable Mixers
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☐	3521	Belt-driven Exhaust Fan
☐	3522	Snap-on Pipe Insulation
☐	3523	Pre-mixed Mortar
☐	3524	Metal Conveyor Belt
☐	3525	Lavatory
☐	3526	Roof Coatings
☐	3527	Pump Trouble Chart
☐	3528	Masonry Preservation
☐	3529	Arc-resistant Plugs
☐	3530a	Plastic & Rubber Pipe
☐	3530b	Plastic Diaphragm Valves
☐	3530c	Plastic Tubing
☐	3530d	Rubber-plastic Pail
☐	3531a	Stainless Milk Tank
☐	3531b	Trays & Tote Boxes
☐	3531c	Dry Ingredient Container
☐	3531d	Metal Food Processing Equipment
☐	3532	Tractor Shovel for Apples
☐	3533	Pulverizer
☐	3534	Herbicide
☐	3535	Snail, Slug Control
☐	3536	Automatic Sprinkler for Fire Protection
☐	3537	Rust Inhibitive Paint
☐	3538	Portable Bag Closer
☐	3539	Dewatering Sizing Screens
☐	3540	Dicalite Filter Aids
☐	3541a	Explosion-proof Vacuums
☐	3541b	Scrubber-polisher
☐	3541c	Floor Maintenance Equipment, Supplies
☐	3542a	Teflon-jacketed Gaskets
☐	3542b	Snap-on Gaskets
☐	3542c	V-type Packing
☐	3542d	Pump Packing
☐	3543	Steam-jet Cleaner
☐	3544	Concrete Floor Patch
☐	3545	Piston Filler
☐	3548	Plastic Fittings & Flanges
☐	3547	Peach Flavor

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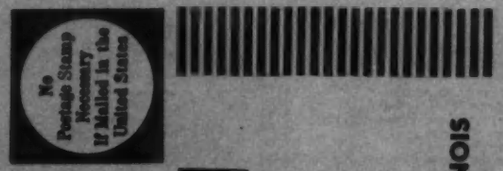
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"THAT'S INTERESTING"

(Continued from page 74)

Bananas find refrigerator is "home, sweet, home"

An innovation in refrigerator design now makes it possible for bananas to find a happy home in what was once forbidden territory. A special bin is built into the refrigerator

and there the bananas keep at exactly the right temperature. Banana section is completely sealed off with a vinyl gasket. When door closes the tie or seal prevents entry of cold air. In addition to space for bananas, there is also provision for 75' of freezer wrap. (Kelvinator Div., American Motors Sales Corp., Dept. FP, 14250 Plymouth Road, Detroit, Mich.)

Doughnuts made in 32 varieties — includin' one with dunkin' handle

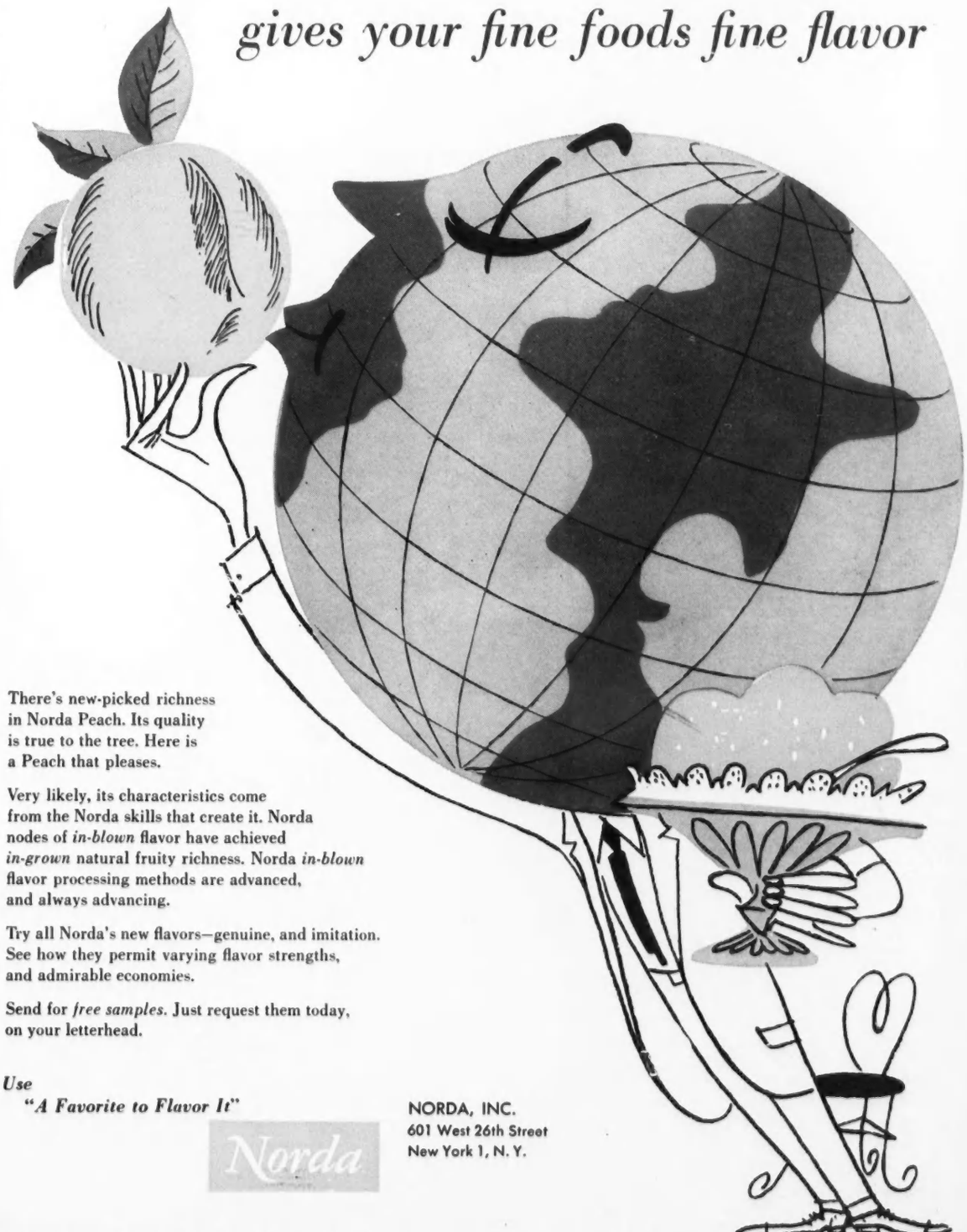
Familiar order of "coffee and sinkers" is long outmoded. First, the modern commercial doughnut cannot be so designated. Second, often one can choose from a variety of different kinds. Shops of Dunkin' Donuts, Inc., Quincy, Mass., offer 32 varieties, including one with a handle!

Pimentos — Spanish and domestic

Although pimentos are native to America, all that were used in this country prior to 1920 were imported from Spain. Columbus took seeds back to Spain, where they have ever since been cultivated extensively. Now, however, crops in Georgia, Alabama, Mississippi, and other states provide a domestic supply.

Sale of canned pimentos has increased enormously in the last eight years. A promotion program is currently underway. Can Manufacturers Institute, New York 17, N. Y., is activating this program.

This peach with its fresh orchard taste gives your fine foods fine flavor



There's new-picked richness in Norda Peach. Its quality is true to the tree. Here is a Peach that pleases.

Very likely, its characteristics come from the Norda skills that create it. Norda nodes of *in-blown* flavor have achieved *in-grown* natural fruity richness. Norda *in-blown* flavor processing methods are advanced, and always advancing.

Try all Norda's new flavors—genuine, and imitation. See how they permit varying flavor strengths, and admirable economies.

Send for *free samples*. Just request them today, on your letterhead.

Use "A Favorite to Flavor It"

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Relax and enjoy your favorite sport over the weekend. Any time, ease up with a Camel. During the working week, dispel many traffic and shipping tensions by specifying Union Corrugated Shipping Containers. Union boxes are uniform in quality, dependable in delivery and performance. They give you peace of mind in an important area of your business. That's worth a lot, isn't it?

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